

May 7, 2001

Volume 18, Number 19

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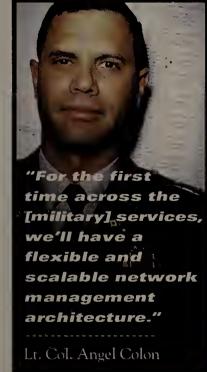
## Army thinks big on net mgmt.

Half-dozen companies vie for \$1 billion management project.

BY CAROLYN DUFFY MARSAN

The United States Army is mounting a campaign to develop the largest, most ambitious network management system ever built, and it's drafting commercial software and Internet standards for the job.

As early as this week, the Army will award a pair of contracts to design and build the Joint Network Management System (JNMS), a high-level network planning, monitoring See Army, page 148



RON SCHMIDT

# Broadwing to break out Gig Ethernet services

BY DENISE PAPPALARDO

LAS VEGAS — Broadwing will make a Gigabit Ethernet splash at NetWorld+Interop 2001 this week with the introduction of a managed service that supports speeds from 50M to 1G bit/sec and will likely cost a fraction of similar OC-3 and OC-12 services.

While the price of the service will be attractive, more important is the flexibility it will offer, says Nick Maynard, an analyst at Yankee Group.

Broadwing will provision a Gigabit Ethernet port for each customer site, but users will only pay for the average bandwidth used per month, even if they have traffic bursts up to 1G bit/sec, says Tony Tomae, Broadwing vice president of Internet and data services.

"The ability to provide additional bandwidth to suit customer needs is much more important than the lower prices that go along with Ethernet services," Maynard says. "If a user has to wait nine months for more bandwidth, it doesn't matter how cheap the circuits are, the service isn't worth it."

Although Broadwing would not reveal specific pricing, executives say users can

See **Broadwing**, page 142

# Demise of Pilot seen as blow to outsourcing

BY ELLEN MESSMER AND DENISE PAPPALARDO

ALAMEDA, CALIF. — The financial situation — but they brupt crash of Pilot — also are now not

abrupt crash of Pilot Network Services recently raises anew questions about outsourcing critical network services particularly services

as sensitive as security.

As the shell-shocked survivors of the Pilot implosion survey the damage, they say

that not only would they not trust Pilot again — should it ever emerge from its current financial situation — but they

> also are now not willing to throw their fate in with any of the smaller companies providing managed security services. This senti-

ment is potentially bad news for smaller companies such as Counterpane Riptech and See **Pilot**, page 146 **More Interop news** 10 Gigabit Ethernet to make a splash. Page 8. A slew of net and apps management tools will debut. Page 10. Newcomer Zuma to unveil switches with a Linux twist. Page 10. Speedy server technology InfiniBand to emerge from shadows. Page 12. F5, CacheFlow aim to speed content delivery. Page 12. Bear market to make itself felt at Interop. Page 14. **Metro optical Ethernet** equipment vendors plot their courses. Page 14. SonicWall and others to raise VPN ante.

# Page 16. Online:

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Clustered File Systems	2000	not yet
Global Network Services	2000	not yet

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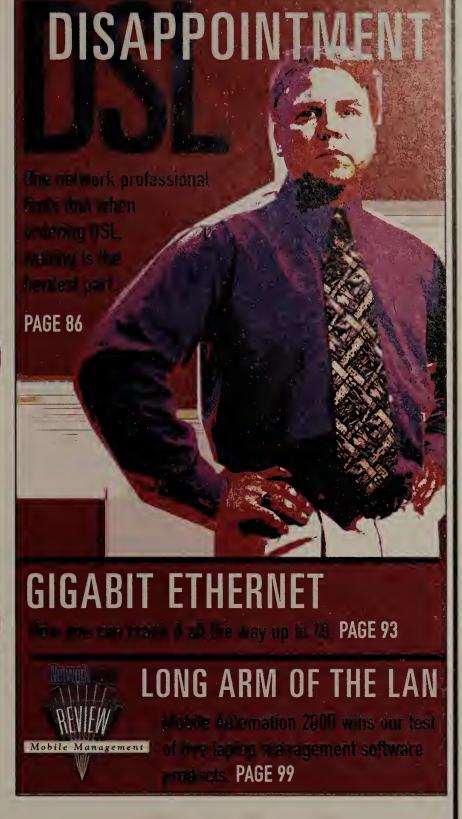
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#### Waiting for Godot, um, DSL

Check out the correspondence between a Covad customer and the company's support staff on why he never gets the DSL he was promised. DocFinder: 4125

#### NEWS

#### New optical system

Read about the launch of Cisco's new product even with the layoff of 8,500 more employees on the horizon. DocFinder: 4144

#### Multi-protocol Label Switching

Read about Extreme's new module, "the blade," set to debut at the NetWorld+Interop 2001 show in Las Vegas. DocFinder: 4145

#### **FORUMS**

#### Saving money

The economy is putting a stranglehold on network budgets. What are you doing to save money? Discuss tips. DocFinder: 4146

#### LAN shutdown woes

A user wants to know what to do when his 10/100 LAN fails to re-establish its connection on starting up from a standby-type shutdown.

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#### Network segmenting

A user moving his net from a hub to a managed switch seeks tips on optimizing performance. Suggestions? DocFinder: 4148

#### **Build your business**

Join Network World at "The Changing Face of Information Security." This educational, one-day event will show you how to protect your valuable information assets and your future growth. DocFinder: 4149

#### Pick'n'Pans of N+I

Hear what Network World's Jason Meserve has to say about the show, what's weird, what's funky and what you should definitely seek out. DocFinder: 4021

#### CARUSO'S CACHE

The best of the Netflash daily newsletter

#### Genuity gets \$2 billion in credit, cuts workforce

Today's layoffs are brought to you by Genuity. The service provider says it will let go about 800 of its employees. However, its losses are narrower than expected, and the company will receive up to \$2 billion from Verizon Communications. DocFinder: 4156

#### Cisco sued over credit practices

Many stockholders are upset about their tech stocks lately, but some are taking action — legal action. A lawsuit has been filed against Cisco that claims the company used to lend money to its customers so they could buy Cisco equipment. The practice artificially inflated Cisco's sales figures and, therefore, the stock price, the suit claims. DocFinder: 4157

#### Dell to recall Inspiron notebook batteries

Dell says one of the batteries it shipped out with its notebook computers can overheat — to the point of catching fire. The company is issuing a recall for 284,000 batteries it sold. If you bought a Dell notebook this year, check the story and check with Dell. DocFinder: 4158

#### Web services hold big promise, Microsoft exec says

A familiar refrain is coming from Microsoft, as the company turns its eyes toward Web services in its .Net strategy. As IDG News Service writer Stephen Lawson put it, Microsoft is "committed to working within common standards for those services — as much as it can." That's a stance that has gotten the company a lot of flack in the past — but that doesn't seem to have fazed Microsoft. DocFinder: 4161

— Jeff Caruso, managing editor, online news

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#### COLUMNISTS

#### Bleeding Edge

Singing strategy

Touting solid business strategy, the disco retro group, the Telco

HeeBee-GeeBees, has created a remix of an old song.

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#### Help Desk

LEC vs CLEC?

Ron Nutter helps a user decide between staying with his current provider and turning to the services of a competitive local exchange carrier. Doc Finder: 4151

#### Compendium

Cracking Shells

Fusion Executive Editor Adam Gaffin finds the world's first Unix pop song. DocFinder: 4152

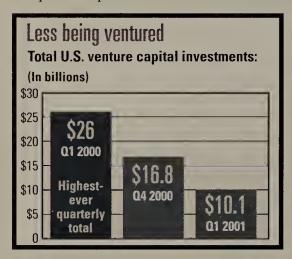


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## NEWS BRIEFS, MAY 7, 2001

#### Survey confirms VC drought

U.S. venture capital investment plummeted to \$10.1 billion in the first quarter of 2001, hitting a two-year low, which represents a 40% decline from the previous quarter, according to the PricewaterhouseCoopers and VentureOne MoneyTree survey. All types of start-ups - software, business services, telecommunications and even biotechnology — suffered from the downturn. This marks the greatest quarter-to-quarter decrease ever. "There was a tremendous run-up in the amount of venture capital activity that began in the second quarter of 1999 and ran through the first quarter of 2000," says Dave Witherow, CEO of VentureOne. "That was the aberration....The level that we're settling down to is still way, way ahead of 1998." Hardest hit were Internet infrastructure players primarily carriers — that received \$2.1 billion in the first quarter of 2001, down 52% from the previous quarter.



#### ISS to acquire Network Ice

Internet Security Systems last week said it intends to buy Network Ice of San Mateo, Calif., for approximately \$195 million worth of stock. With the acquisition, which will take a few months to complete, ISS will gain a foothold in desktop-based intrusion detection with Network Ice's BlackIce Defender. ISS also will gain BlackIce Gigabit Sentry, a higher-speed intrusion-detection product than its own. ISS acknowledged there is substantial product overlap with Network Ice, and said it plans to have a concrete product and systems management development plan after the merger.

#### B2C travel sites on the upswing

Online travel companies are gaining altitude compared with many other business-to-consumer e-commerce firms. Expedia last week reported its first profitable quarter — on an operating basis, anyway. The Microsoft-controlled travel site said its earnings hit \$4.4 million before noncash charges, compared with a year-ago loss of \$21.4 million. Rival site Travelocity.com posted its first positive quarterly cash earnings last month. Not to be outdone, Priceline.com last week bested analysts' expectations with a first-quarter loss,

excluding restructuring and other charges, of \$6.25 million compared with a year-ago loss of \$7.28 million. The positive news sent all three companies' stock prices soaring.

#### SpaceWorks reaches end of the line

E-commerce software maker SpaceWorks last week shut down operations after two major investors opted out of a fifth round of funding. The Rockville, Md., company anticipated \$10 million from GE Capital Equity and Columbia Capital. It had received \$56 million in funding since it opened in 1993, developing software that automated activities such as bill presentment and payment, customer support and personalization for suppliers over the Web. SpaceWorks had high-profile customers such as Maytag and BF Goodrich. The company had just released the sixth version of its Web BusinessManager Suite.

#### Genuity slashes 12% of workforce

Telecom service provider Genuity last week announced that it is laying off 12% of its employees — more than 800 workers. The company also said it has received up to \$2 billion in additional long-term capital financing from majority shareholder Verizon. The announcements came as Genuity posted slightly better than expected first-quarter results. In a conference call, Genuity CEO Paul Gudonis said the company was being affected by a general economic slowdown, leading to a sense of uncertainty that has curbed IT spending. For that reason, the firm has nixed plans to move to new facilities. Genuity also emphasized that the staff cuts do not affect customer service personnel.

#### Air Force researchers strafe Outlook patch

Air Force Academy researchers Martin Carlisle and Scott Studer have published a paper sharply critical of security measures in a patch for Microsoft's Outlook 2000 e-mail client. The patch, Outlook 2000 SR-1 E-mail Security Update, adds three functions to Outlook 2000: e-mail attachment security, which blocks certain types of attachments from being run; the object model guard, which prompts users with a dialog box when an external program attempts to access the Outlook Address Book or send email; and heightened Outlook default security settings. But the inclusion of the e-mail attachment security feature in the patch means it has not been installed by many users who do not want the ability to download certain attachments blocked, leaving them vulnerable to attack, the paper said. Even when the patch is implemented, the attachment security feature can be easily circumvented, executing code from an attachment that exploits frequently discovered buffer overflow errors, such as the vCard handler overflow, the paper said.

# 10 Gigabit Ethernet to step into the N+I spotlight

BY PHIL HOCHMUTH

LAS VEGAS — The amount of 10 Gigabit Ethernet network gear being introduced and demonstrated at NetWorld+Interop 2001 this week means enterprise users could get the high-speed LAN technology in their networks sooner rather than later, and next-generation Ethernet services could be around the corner.

At the show, Foundry Networks will announce a 10 Gigabit Ethernet module for its BigIron backbone switch for companies and metropolitan-area network (MAN) service providers. Avaya will have its 10 Gigabit blade on display at the show, although it has not formally announced the product. Combine those developments with the fact that Cisco, Enterasys and Extreme Networks have all detailed plans to roll out 10 Gigabit Ethernet products in the coming months and the 10 Gigabit Ethernet market is getting crowded quickly.

At least one user can't wait. "Assuming that it's ready and stable, we'd use [10 Gigabit] right now," says Stewart Seruya, chief network officer at the University of Miami. "We're not hurting with our Gigabit backbone, but I'd like to have growth built in there."



its database business to IBM, what will Informix's remaining business operations be called?

www.nwfusion.com



The university will begin testing Foundry's B10Gx 10 Gigabit module this month, Seruya says, adding that he has several applications in mind for the module, from linking BigIron switches in the university's backbone to stringing together remote campuses throughout southern Florida. He likes the idea that the module could provide a tenfold boost over the same fiber now used in the school's 1G bit/sec MAN

Foundry's B10Gx 10 Gigabit Ethernet module will come with several optical inserts for connecting to various kinds of cable — such as multimode and single-mode fiber optics — depending on the WAN or LAN application of the module. The blade will be compatible with the company's BigIron 4000, 8000 and 15000 switch chassis.

According to Graham Celine, vice president of Avaya's multiservice network group, his company will have its 10 Gigabit module out "hopefully by the end of the fiscal year," which ends on Sept. 30. The module will fit into Avaya's Cajun P880 and P882 backbone switches. Celine would not provide a price range for the module.

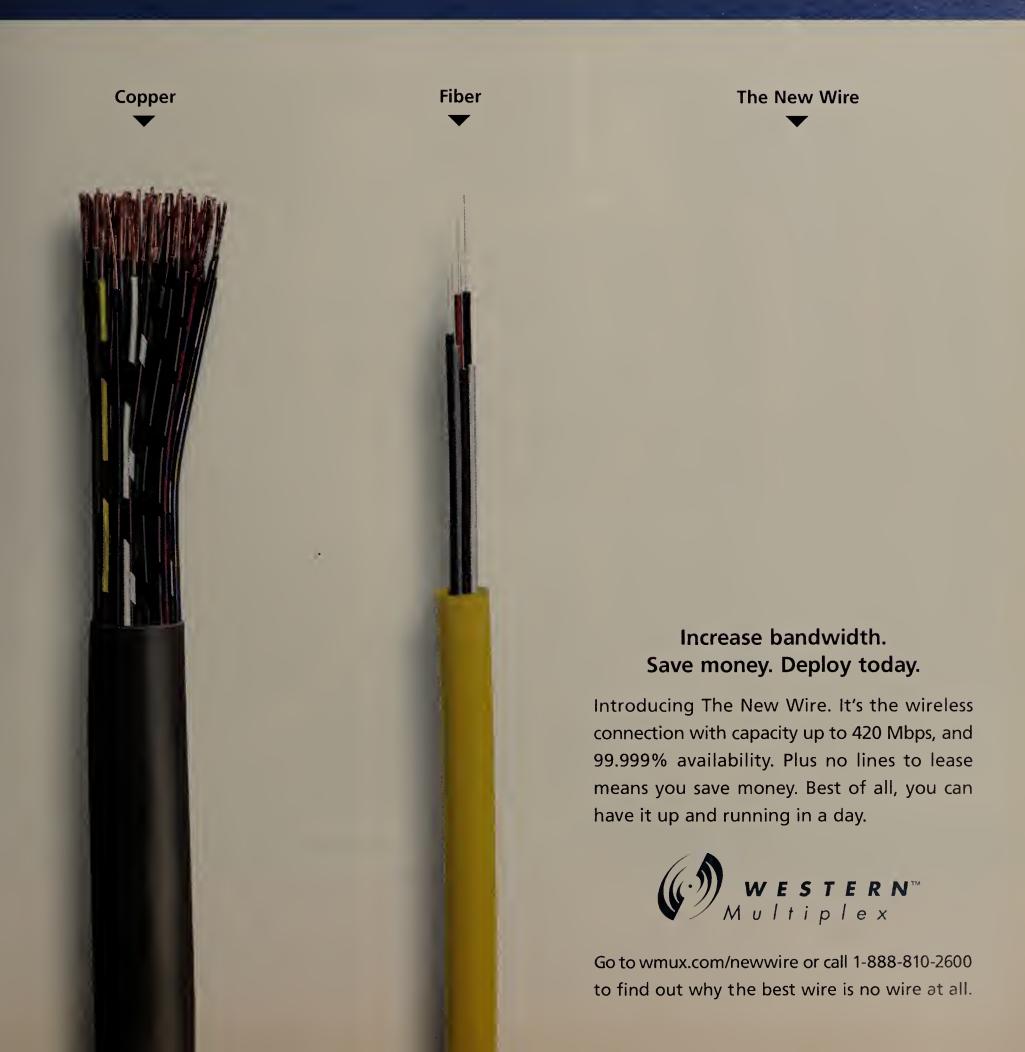
One P880 user says his network can wait for the blade.

"Eventually we'll need that module, but not at this point," says Mike Hochstein, senior network administrator at Buena Vista University in Storm Lake, Iowa. Hochstein says the utilization of his backbone runs in the single-digit percentages, but as in Miami's case, multimedia plans for Buena Vista's network could bump that up.

See 10 Gig, page 146

Read more about the up and coming 10 Gigabit Ethernet. Page 93.

# You see two building-to-building connections. The smart choice is the one you don't see.



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### **Zuma switches** double as server appliances

BY PHIL HOCHMUTH

LAS VEGAS — Who says there are no new enterprise network switch makers on the scene?

A West Hills, Calif., start-up called Zuma Networks will debut several new switches this week that could interest companies looking to integrate server appliance functions into an Ethernet switch backplane.

Zuma's switches have line cards that can act as miniature servers that tie into the backplane, letting the box perform more IP services on top of Layer 2 through Layer 4 switching and routing, such as firewall or intrusion detection. The company says integration with the backplane lets Zuma's gear function much faster than an external network appliance attached to a regular switch.

At NetWorld+Interop 2001, Zuma will demonstrate its LightReef line of switches that feature a variety of Fast Ethernet and Gigabit port line cards, as well as its "Linux processor" modules. The modules act as miniature, onboard servers running the Linux operating system. Zuma says it wants to partner with firms that can develop IP service applications to run on its line of Linux-based switch modules.

Zuma's LightReef Z1 is a 24port 10/100M bit/sec Ethernet switch with one "Linux blade" slot. The LightReef Z4 can handle up to 120 10/100 ports, and 30 Gigabit Ethernet ports and two Linux processing blades. Zuma's high-end chassis is the LightReef Z16, which has a 256M-bit/sec backplane, room for 16 Linux modules, and can be loaded with 126 Gigabit Ethernet ports, 500 10/100 ports, or a combination in between.

The LightReef Z1 should be available May 30, and the Z4 a month later. The Z16's availability has not yet been released. The switches will cost from \$12,000 to \$200,000 depending on switch port and Linux blade configurations.

Zuma: www.zumanetworks.

# Make way for new management tools

BY DENISE DUBIE AND JOHN FONTANA

LAS VEGAS - A slew of vendors will introduce products and services in Las Vegas this week designed to help firms strapped for cash and IT staffers manage their networks more easily and less expensively.

Many of the products making their debuts at NetWorld+ Interop 2001 promise to give companies a better handle on whether they are making optimal use of their network and application resources. New remote management tools and services are largely aimed at companies that don't want to hire more IT staff or can't find any to hire.

"We need products that save us money. In terms of staff training and response time issues, we need something that helps us resolve problems quickly," says Mark Clayman, director of hosting at application service provider Surebridge.

Clayman has been using Entuity's flagship fault management software Eye of the Storm for about nine months and says he's looking forward to trying out features Entuity will unveil this week in Version 2.6.

The company says the software, which had focused on network performance management, now can reveal what impact network problems have on applications and servers.

Microsoft will also reveal more of its plan to ease management of nets based on its applications and operating systems by announcing the final beta-test version before general shipment of its Microsoft Operations Manager (MOM).

The tool monitors event and performance on servers and applications such as SQL Server, Active Directory and Exchange. MOM, expected to ship this summer, is the first part of an object-oriented platform Microsoft is building to manage Windows servers and enterprise applications. The platform will also include the next version of System Management Server (SMS) for managing desktops, codenamed Topaz, and Application Center 2000 for managing Web farms.

#### Management potpourri

New and established companies will unveil management products this week at N+I.

Company	Product	Description	Pricing
Antara.net www.antara.net	FlameThrower product family	Software to optimize network capacity and test how network devices will perform in high volumes of traffic.	\$40,000 to \$75,000
Entuity www.entuity.com	Eye of the Storm 2.6	Network fault and performance management software now extended to monitor applications and servers.	\$30,000
<b>Keynote</b> www.keynote.com	Enterprise Perspective	Software that manages Web application performance on either side of the firewall and displays results on existing management consoles.	\$100,000
Micromuse www.micromuse.com	NetCool/WebTop	An add-on to NetCool/Omnibus that includes remote access to real-time network operations center status data from any browser.	\$1,000 to \$4,000
NetScout www.netscout.com	nGenius Capacity Planner 3.0, nGenius Capacity Planner for Probes, nGenius Application Service Level Manager 3.0, nGenius NewsStand	Software for long-term network planning, managing application service levels from the end-user perspective and customizing performance reports.	\$50,000 \$25,000 \$50,000 \$25,000
NetTest www.nettest.com	FastNet	Network monitor hardware with embedded software that increases the speed and quantity of traffic on a network.	\$20,000
Parc Technologies www.parc-technologies.com	RiskWise product suite	Software that manages e-business networks and provides traffic analysis, resilience analysis and topology optimization.	\$150,000
ProactiveNet www.proactivenet.com	ProactiveNet 4.0	Software that pinpoints Web infrastructure performance problems by acting as a root-cause console.	\$5,000
Shunra www.shunra.com	The Cloud 3.0	Software that lets users recreate a shared WAN on a LAN to test application performance.	\$4,000
Valencia Systems www.valenciasystems.com	Aruba 2.0	Software that improves management- level reporting.	\$5,000

The platform will exploit new XML interfaces in Windows 2002, the foundation of the management platform. MOM, SMS and Application Center will run on the platform, which will feature a customizable management portal.

NetIQ, a company that licenses the underlying technology for MOM to Microsoft, this week is expected to release MOM modules that will let the Microsoft platform monitor Oracle, SAP and Lotus applications as well as systems based on non-Microsoft operating systems.

Also at the show:

• Micromuse plans to expand its NetCool/Omnibus product suite with technology that gives customers access to network performance data from any Web browser. Previously, a Unix interface was required. The new Net-Cool/Webtop is aimed at helping companies remotely monitor their networks and provide management views to more people. Micromuse's management offering can collect network performance data from more than 300 devices and management platforms.

• Start-up Interloci is promising to give companies all the advantages of running Hewlett-Packard's OpenView management platform without the headaches of rolling it out and operating it themselves. This management service provider, headed by IBM Global Services veteran Gordon Garrett, says it will "manage bandwidth and everything on it" on a subscription basis. Interloci's Rent a NOC service comes in two flavors: basic monitoring and monitoring with management. The basic service costs \$60 per device per month, with a

10-device minimum. The higherend service costs \$300 per device per month.

• Keynote, best known for monitoring Web site performance from outside the firewall, will start giving companies the tools to also monitor Web sites from behind the firewall. With Keynote Enterprise Perspective, companies can hook Keynote's technology into popular framework products such as Computer Associates TNG, HP OpenView and Micromuse Net-Cool. Keynote software lets customers measure Web site performance based on response time, transaction success and network latency. The new offering takes that data and combines it with data collected by other management tools to help customers manage the back-end systems that their customer-facing applications tap into.

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# InfiniBand products proliferate at Interop

BY DENI CONNOR

LAS VEGAS - InfiniBand companies this week will show switches and network adapters at NetWorld+Interop to IT professionals who are largely unaware of the high-speed interface used in servers to relieve network congestion.

Switch start-up InfiniCon Systems and 20 other companies, including Intel and Emulex, are exhibiting in the InfiniBand Trade Association pavilion. Analysts say IT professionals haven't heard the hype about InfiniBand, don't know when it will be available and don't immediately understand the benefits of using it.

"No way do users understand InfiniBand," says Tony Prigmore, an analyst with Enterprise Storage Group. "Customers have no idea what InfiniBand will do, just as they don't understand IP storage."

InfiniBand is a 2.5G bit/sec, point-to-point server interconnect technology that lets multiple I/O devices request data from a system CPU at the same time without delays or congestion. It is an alternative to slower, more congested, serial, bus-based technologies, such as PCI and Extended PCI, which handle only one request at a time.

Users need InfiniBand to relieve bus-congestion problems and increase an application's access to memory, vendors say. Network managers will most likely install Infini-Band servers, switches and adapters in Internet data centers where it will cluster servers to increase computational capability, or in database operations that are I/O intensive, says Bert McComas, an analyst with Inquest Market Research.

"InfiniBand is going to be a widely adopted replacement to the PCI bus," McComas says. "In the next six months we are going to see a bunch of switches to get us ready for 2002 when the system vendors will ship embedded InfiniBand servers.

InfiniBand will be another interconnect for high-availability clusters [of servers], available at a lower price, better performance and lower latency," he says.

InfiniBand switch vendor

These start-ups are but a few that will show off InfiniBand wares this week.

Name	Location	Founders	Founders' backgrounds	Funding
InfiniCon	King of Prussia, Pa.	Philip Murphy, Todd Matters	Unisys	\$4 million: Arch Venture Partners, Tredegar Investments
Infini Switch	Westborough, Mass.	Peter Steinbach, Robert Simcoe	Compaq, Data General	OneLiberty, Newcogen (undisclosed amount)
Paceline Systems	Chelmsford, Mass.	Ed Mezzanotte, CEO; Steve Hauser, CTO; John Hanratty, VP of marketing	Stratus, Lucent, Fujitsu, Agile	\$20 million: Banc Boston, Ventures, and others

McComas says that for InfiniBand to be adopted there must be a compelling data- and I/O-centric application, such as Oracle Parallel Server (OPS). In OPS, multiple instances of the database running on different computer systems can simultaneously access the same database files to increase availability and performance.

One customer could immediately think of instances in which InfiniBand would be helpful.

"Even though we don't have an immediate plan to implement InfiniBand, it would be useful in the data center where Microsoft Cluster Server operates," says Kevin Beattie, director of corporate information services at Nordson, a precisiondispensing manufacturer in Westlake, Ohio. "Companies that are doing data mining or warehousing or looking to get into global available-to-promise modeling, which require giant memory resources, would be excellent candidates for InfiniBand."

InfiniCon, which is making its debut at N+I, Paceline Systems and Infini Switch are all early developers of switches for

the new higher-speed system interface that system vendors will incorporate into servers by year-end.

Adaptec will manufacture an external InfiniBand RAID controller for SCSI storage that will be available in the first half of next year. Other vendors, such as OLogic, OmegaBand and Crossroads Systems, will also

See InfiniBand, page 144

## F5, CacheFlow bolster content-delivery product lines

Companies stress application availability, streaming media support with upgraded devices.

BY PHIL HOCHMUTH

LAS VEGAS — F5 Networks this week will announce a new version of its Big-IP Controller that adds content switching as well as quality-of-service and application monitoring to its Internet traffic management

Separately, CacheFlow will show off a content-caching product bundle designed to help companies exploit streaming-media technology.

Both companies will debut their offerings at NetWorld+ Interop 2001.

F5's Big-IP Controller 4.0 is designed to help enterprise network users make their Web sites or critical intranet applications more available to users, while letting companies monitor the usage of their sites or applications.

The box competes with loadbalancing, Web switching and caching products from Cache-Flow, Cisco, Nortel Networks, Top Layer and others.

Version 4.0 includes new



Version 4.0 of F5's Big-IP features Web switching and QoS monitoring.

technology that works with the HTTP 1.1 keep-alive features native to Web servers to consolidate requests for multiple Web page objects into one TCP connection. This process is aimed at squeezing bandwidth usage and reducing the risk of a server crash due to an overload of TCP connections.

Version 4.0 also combines Big-IP's local load-balancing capabilities with the WAN loadbalancing technology of F5's 3DNS, previously a stand-alone product. 3DNS can be used to redirect Web traffic to a back-up domain when a site becomes overwhelmed.

The ability to monitor traffic patterns for Web applications with Big-IP 4.0 is important to Brian Terry, vice president of IT at People's Bank in Bridgeport, Conn. Terry has used Big-IP for several years to load balance his servers, and plans to employ application monitoring with a credit card intranet database used by

the bank's customer service representatives.

'We're implementing some QoS on that [intranet] application, and it will be nice to monitor that and see if [QoS] is performing the way it's supposed to," Terry says.

Big-IP 4.0 costs \$10,000 for the basic version (Layer 4 load balancing only) and \$47,250 for the enterprise version, which includes Layer 7 Web switching and application performancemonitoring tools.

#### CacheFlow's starter kit

Separately, CacheFlow's latest effort is to help companies ease into streaming media. The company's caching devices are designed to house streamingmedia content as close as possi-

ble to end users in order to conserve on net bandwidth usage and to speed content delivery.

The vendor's cIQ Starter Kit includes cIQ Director, management software for controlling access to and distributing streaming media and other Web content to remote offices; two high-end edge accelerators for controlling access to and bringing Web content closer to corporate users; and four Cache-Flow 600 Edge Accelerator devices for storing content in remote locations. Each of the accelerators comes with the necessary licenses for streaming Real, Microsoft and QuickTime

The starter kit is available for an introductory price of \$115,000 for the next 90 days, and \$215,000 after that. The package also contains a 90-day trial of CacheFlow's Web-Trends Enterprise suite for monitoring Web usage.

Multimedia Editor Jason Meserve contributed to this report.



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# Interop no-shows reflect slowdown in economy

BY PHIL HOCHMUTH

LAS VEGAS — While most of the usual suspects will be erecting booths on the show floor of the Las Vegas Convention Center this week, a few high-profile IT companies have elected to skip this year's NetWorld+Interop 2001 trade show. Meanwhile, show organizers claim it's business as usual for networking's largest trade show.

Chip and telecom gear maker Motorola is scaling back at the show. The company says it is focusing on promoting its own event, called Motorola Smart Networks Development Forum, which is scheduled to take place in two weeks in New Orleans (one of few U.S. cities that can be hotter than Las Vegas in May).

Other companies choosing to forego booths this year arc network equipment maker 3Com, and service provider WorldCom, both of which have had large N+I showings in the past. Coincidentally or not, both companies have had financial troubles this year and have made layoffs.

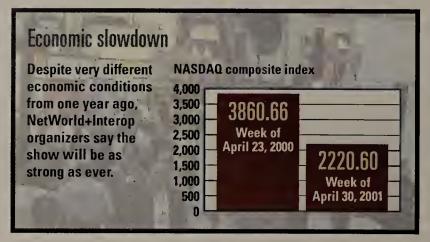
Network management firm Tivoli Systems says the two customer leads it received during last year's Las Vcgas show didn't justify the \$800,000 cost to host a booth.

Tivoli has been trying to do "way too many things, in way too thin a way," in terms of marketing, says President David Murphy. The company's plan to make "fewer and deeper" efforts to reach potential customers may lessen its presence at trade shows.

"The ability in today's world to reach more than 1,000 customers online is a much more practical way to reach people," he says. "We sell to the CIO—the people running major parts of technology businesses. [Events like] N+I feature a more user-group environment."

Others who will exhibit say the show could have a little different flavor than it has in the past.

"The rhetoric at this N+I will be more bearish," says Romulus Pereira, CEO of Riverstone Networks, a maker of switching hardware for metropolitan service providers that will exhibit at the show. "Last year, the



whole thing sounded like 'to infinity and beyond.'This year, a lot of [vendors] will see if they can just get to 'scratch and beyond," in terms of sales business from the show.

"Now that things are tighter this year, you may see people more interested in trying to squeeze as much as they can out of the networks they have rather than building out more infrastructure," both on the service provider and enterprise side, he adds.

One company is molding its entire N+I pitch around this concept. NetReality, a maker of equipment for measuring and managing network traffic, has decided to forego the usual next-generation product approach to the show. The company says it has postponed its

new product launch to focus on helping network professionals get the most out of their existing networks — with NetReality's existing products, of course. The company will also be giving away "return-on-investment" calculators at its booth at the show.

Whether users are spending less on IT infrastructure is still up in the air, as shown by two conflicting surveys. A survey of IT professionals conducted by Cahners In-Stat Group in April found that one-third of U.S. businesses plan to decrease IT spending this year as a result of declining business performance. A recent Gartner report on the other hand says worldwide IT spending will double during the next four years, reaching \$1.4 trillion by 2005.

Tough financial times are also affecting some users' plans for the show. One network professional at a large Boston mutual fund company, who did not want to be identified, says he and his staff were planning on attending the show but canceled two months ago.

"Due to loss of revenue . . . cutbacks were necessary, and all unnecessary travel was canceled," he says. "There are multiple people in my group who have been to the show for the last five years or so who are not going this year. . . . I'm guessing 30-plus would have been going to Interop [from my firm]."

The Boston network professional adds that he had anticipated going to sessions to learn about load-balancing and firewall technologies, but he will probably turn to the Web for education and research now.

While show organizers would not release a preshow tally, attendee and exhibitor numbers are projected to be

See No-show, page 142

## Optical Ethernet firms brave stormy industry seas

While some anticipate a rebound, others say Ethernet services won't cut it.

BY TERRI GIMPELSON

LAS VEGAS — Despite reduced capital spending from their customers, metropolitan optical Ethernet companies exhibiting at this week's Net-World+Interop 2001 show say they will not stray from their original business plans in an effort to create or stimulate demand for their products.

The companies say their initial business objective — making and selling equipment that lets service providers deliver Ethernet services to companies — is still compelling enough to investors and customers that they can generate enough capital and revenue to ride out the current economic slump. The consensus among metropolitan Ethernet vendors is that companies targeting long-haul networks will suffer most from the industry downturn.

Some have been hit harder than others. Astral Point has had to lay off 20% of its staff and halt development of one of its two product lines to conserve venture funding. And ADVA Optical Networking has had to lower its revenue guidance for 2001 by about 10%, which is still nearly double the \$60.6 million realized in 2000.

"There was a lot of money spent in 2000 on scaling for future capabilities," says Brian McCann, ADVA's chief sales and marketing officer. "Now that's only going to be done out of necessity."

"The rules of the game have changed," adds Agnes Imregh, vice president of marketing at LuxN.

Vendors are hopeful the industry will start to turn around in the fourth quarter of this year, or the first half of 2002. Some reputable and influential Wall Street firms, however, say the industry is just closing the first year of what could be a three-year slump (www.nwfusion.com. DocFinder: 4143).

McCann admits that visibility is murky.

"No one really knows when this will be over," he says. "It's going to take cash to get through this storm because what's been projected in sales is already softer. Real companies with real products to deliver are the ones that are going to survive."

"Real" is not in the vocabulary of some analysts when they consider the business case for Ethernet metropolitanarea network services. They say these companies haven't seen the worst of it yet.

"I don't see any way the telecom industry in the U.S. is going to evolve in such a way that the result is going to be a large-scale purchase of Ethernet," says Tom Nolle, president of consultancy CIMI Corp. in Voorhees, NJ. "I give Ethernet six months before the whole thing is gone. You can't map [time-division multiplexing] infrastructures to Ethernet. You can't sell leased lines over Ethernet. This just is not going to work. ATM is going to dominate."

Undaunted, vendors press on.

Between 10% and 20% of ADVA's metropolitan optical business is Ethernet. ADVA is also negatively affected by a

slowdown in spending on storage-area networking, according to a recent credit report.

"Enterprise customers in both the U.S. and Europe appear to be delaying the deployment of large storage projects that would require the use of [dense wave division multiplexing] Fibre Channel, a key focus of ADVA's enterprise business," the report stated.

See Roundup, page 142



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# VPN vendors shoot for speed, load balancing

Latest Sonic Wall offering works on Gigabit Ethernet networks.

BY TIM GREENE

LAS VEGAS — Several vendors will use NetWorld+Interop 2001 to launch high-speed VPN gear aimed at protecting busy corporate sites such as data

SonicWall, known for catering to small and midsize companies, will go upscale with its SonicWall GX chassis designed for protecting sites accessed via Ethernet, Fast Ethernet or Gigabit Ethernet links. Newcomers Asita and FatPipe Networks will reveal load-balancing capabilities for VPNs.

SonicWall GX comes in two models based on the same sixslot chassis. The GX 250 supports three 10/100 Ethernet ports, and sits between a WAN router and a LAN. The ports connect to the LAN, the WAN router and to public servers that sit outside the corporate

The device has a 100M bit/sec firewall and can encrypt Triple-DES VPN traffic at the same speed.

The GX 650 firewall screens traffic at 1G bit/sec and sports



SonicWall is going upscale with its GX VPN box.

a trio of Gigabit Ethernet ports. The GX 650 includes three encryption cards made by Hi/fn to boost VPN speed to 260M bit/sec. While that is slower than the firewall speed and the line rate of the connections, the company says it has no near-term plans to push the speed higher.

This difference is not uncommon among gigabit firewall devices. Cisco's PIX encrypts at only 100M bit/sec and Net-Screen's 1000ES encrypts at 600M bit/sec.

VPN boxes with big firewalls are becoming more attractive to corporate customers because more users can be added to the VPN without buying a bigger firewall, says John Lawler, an analyst with Infonetics. "You can grow without disrupting your network," he says.

The GX 250 costs \$15,000 and the GX 650 costs \$30,000. They will be available next

#### Balancing the load

Asita is announcing a partnership with F5 Networks for F5's load-balancing technology that will plug in to Asita's Line-Speed GS2 chassis. LineSpeed GS2 supports a firewall and IP Security (IPSec) VPN as well as policy routing. Individual slots in the chassis can support sep-

See VPNs, page 144

#### NetWorld+Interop news digest

Here's a sample of the companies introducing products this week in Las Vegas:

#### Cable & Wireless

The service provider is launching Managed Hosting Solutions, a service suite that lets customers choose a semicustomized server environment hosted at the service provider's data centers. The standard service is based on a server with an 800-MHz processor and 512M bytes of memory. The intermediate service includes a server with two 933-MHz processors and 512M bytes of memory. And the advanced service features a server with up to four 700-MHz processors and 1G byte of memory. Customers can add more processing or memory power to the systems over time. Cable & Wireless offers either Compaq or Sun servers and a choice of Microsoft, Sun or Linux network operating systems. The service also includes a list of site management features, including load balancing, monitoring, server backup and restoration, server and network design, and database and commerce software configuration. The services cost \$1,500 to \$10,000 per month.

#### Larscom

The company is introducing the Larscom 6200, a multiprotocol access device that connects

Larscom 6200 encapsulates IP

corporate sites to WANs via a 45M bit/sec ATM uplink. Alternatively, the WAN connection can consist of multiple T-1 lines inverse-multiplexed into one logical pipe. The Larscom 6200 works with LANs via a High Speed Serial Interface, V.35 or 10/100 Ethernet port. IP traffic is encapsulated in ATM for transport over the WAN. The device could be used for Internet access, multiplexing serial or Ethernet data traffic on a single link or connecting sites via point-to-point connections. Available next month, the 6200 costs \$10,000.

#### **Network Associates**

The company's McAfee business unit will announce VirusScan ASAP, its licensing plan to let corporations and application service providers offer the McAfee virusscanning software as a managed service. This partnering arrangement represents a first for the industry, says McAfee President Gene Hodges. So far, Paris' Arche Siemens, ISP Unit 4 of the Netherlands, and Scotland's ISP Thus have licensed VirusScan ASAP, Hodges says.

The services involve placing the McAfee hardware/software appliance on site to handle tasks such as scanning email. Antivirus updates and response to security incidents are handled by the McAfee-licensed ASP. Typical costs for

> customers are \$20,000 to \$25,000 for a 1,000-user managed service, or \$50,000 to \$60,000 for 5,000 users.

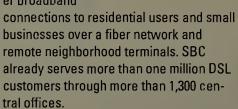
#### Radiant Logic

The company plans to introduce its RadiantOne Context

and Coordination Server, a sort of metadirectory built upon the Netscape Directory Server. Radiant officials say transaction, journaling, event and trigger features of a database make the software a logical point with which to aggregate and update data for a variety of applications and disparate directories. The company's Virtual Directory technology serves as a front end for searching data stored on a database. The server, which can reside on a host of popular database systems, will ship in July for \$50,000.

#### SBC

The incumbent local exchange carrier plans to unveil the next stage of its Project Pronto rollout. Pronto is designed to deliver broadband



#### **Siemens**

The company will demonstrate Version 3.0 of its HiPath 5000 IP PBX, with support for as many as 1,000 users (up from 500) and better integration with traditional Siemens PBXs. A HiPath 5000 can now be deployed on the same corporate network as Siemens' Hicom PBX, with the ability to share phone directory information and transfer extensions between the IP and time division multiplexer-based platforms. The system's new software also now enables the HiPath 5000 to work with Siemens' Xpressions unified messaging platform

— previously compatible only with the company's traditional PBX products. The software also adds improved quality-ofservice capabilities, with support for the IEEE 802.1D Differentiated Services standard for traffic classification. In addition to its latest IP PBX update.



Version 3.0 of Siemens' HiPath 5000 IP PBX can handle up to IP 1000 phones.

#### Top Layer

The company will roll out SecureWatch, software that works with the Top Layer App-Safe application switch to capture a continuous stream of data to identify security-related events in progress or for later forensic evidence. Secure-Watch, which runs on Windows

2000 and Microsoft SQL Server, can store 1 terabyte of traffic-related data that can be searched using SQL-constructed queries. SecureWatch also works with Check Point's firewall management system. SecureWatch costs \$3,000, or \$5,000 with the Check Point support.

#### Whale Communications

The company will release its e-Gap Webmail System, which provides secure Web-access to Microsoft Exchange e-mail from any location, including kiosks. The system combines hardware and software to create a secure checkpoint that brokers communication between Web browsers and Exchange. The checkpoint ensures that Exchange is never exposed directly to an Internet connection, thwarting hackers. Pricing starts at \$8,000 and is based on the number of concurrent users.

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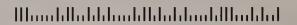
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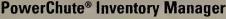




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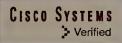


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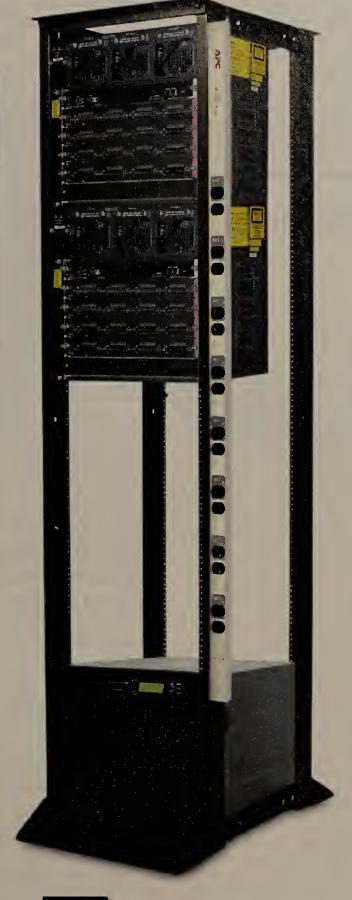
- **KVM Switches** provide one centralized control point for up to 64 servers.
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# Bug delays next Win 2000 service pack

BY JOHN FONTANA

REDMOND, WASH. -- Despite a serious security vulnerability found last week in Windows 2000 Server, IT executives will have to wait for the second service pack for a fix.

Microsoft was set to ship the service pack nearly two weeks ago when researchers re-

ported a major vulnerability in Internet Information Server (IIS) 5.0, which is built into Win 2000. Microsoft immediately canceled shipment of the scrvice pack so it could include a patch that corrects the problem. It is unclear when the service pack will be ready. A Microsoft spokesman would only say it will ship in the first half of this year.

The vulncrability discovered last week is known as a buffer overrun, one of the most wellknown and common avenues for security attacks. In IIS, the flaw is exploited through an Internet Services Application Programming Interface (ISAPI) and can provide an attacker with system-level access to the

server. That means an attacker would have full control of Win 2000 Server. The vulnerability is present in the Server, Advanced Server and DataCenter editions.

"I expect this exploit to be as bad as [Remote Data Services]," says Russ Cooper, editor of the NT BugTraq Web site and the surgeon general for TruSecure. RDS was introduced three years ago in IIS 4.0 and hackers have been using it ever since to deface Web sites and collect credit card numbers.

"We estimate 26% of IIS servers today are still vulnerable to it," because IT administrators have not plugged the hole, Cooper says."I expect this most recent bug to be with us for a long time and in about six months we'll see an exploit."

With that in mind, Microsoft last week scrambled to issue a patch, but the company also began work on incorporating it into Service Pack 2 for Win 2000.

"We have to redo all the system testing and all the final testing before we can release the service pack," says Scott Culp, security program manager at the Microsoft Security Response Center.

Culp says the bug is serious enough to mandate that enterprise users get a fix in a service pack, which is likely to get more attention than a patch. But he says users should get the patch as soon as possible.

Service Pack 2, which is already off the every-six-months release cycle for service packs Microsoft announced when it shipped Win 2000, features a number of fixes for Win 2000 and Active Directory. Microsoft has not publicly discussed what specifically is included.

The newest fix, however, is for the ISAPI extension in IIS that supports the Internet Printing Protocol, which allows printing over the Web. To exploit the flaw, a hacker sends a cleverly crafted URL to the server that contains the malicious code. The string of characters overruns a buffer and then adds executable code to the server. Once the code is run, the hacker gains access to the entire machine. The exploit works only with IIS 5.0.

Microsoft: www.microsoft.

## New portal aims to make searching easy

BY JENNIFER MEARS

PHOENIX — InfoImage this week will unveil the latest version of its portal software that company executives say lets users more efficiently find, categorize and update the massive amount of information they deal with every day.

Enterprise portals organize information that employees nced, providing a single interface into a variety of applications and internal and external data. But most portals don't let users manipulate that data within the portal framework. For example, a user looking for information about a client would have to do a search within each portal object and navigate multiple pages. A portal object creates a window on the portal interface that gives users access to a specific application or data or content source.

What InfoImage hopes to do with Decision Portal 4 is make companies more efficient by letting users search all resources — from customer relationship management and enterprise resource planning systems, to structured data such as accounts payable, to unstructurcd data such as e-mail directly from the portal, says company CEO Randy Eckell. Once a search is completed, the portal automatically refreshes to show only information that is relevant to the search.

Infolmage uses Semio's concept-analysis search engine technology to collect metadata

**Bowstreet jumps** into portal game. Page 57.

from applications and data resources. The metadata, which can include customer names and products, is used to create a list of categories that appears on the left side of the portal. For example, if a user selects a category, Infolmage's proprietary Pivot Portal technology refreshes the portal to present only information and processes relevant to that customer.

some manipulations."

"That's where I think the InfoImage piece is unique," he says. "Users can manipulate data from within the portal framework."

Steve Garten, manager of the finance and administration group at Poten & Partners, an energy brokerage and consulting firm, says InfoImage's new technology will be critical to

"So instead of having to search and drill and dig for information, I just tell the portal what I'm interested in and it comes to me."

Randy Eckell, CEO, InfoImage

"So instead of having to search and drill and dig for information, I just tell the portal what I'm interested in and it comes to me," Eckell says.

While most portal software vendors, such as Plumtree and Epicentric, focus on managing information and figuring out ways for companies to make better, more efficient use of their resources, analysts say InfoImage is the first to give users the ability to actually manipulate the portal.

"With most portals, you build your data view and it's live and data is updated, but you can't go in and say, 'I want to see it this way," says Rob Perry, a senior analyst at The Yankee Group. "For most of them, you have to go back and essentially change the object that brings the data in, so sometimes it's development-oriented, sometimes it's just going back in the administration [of the portal] and doing

parate information sources more quickly.

of cross information, where information is coming from different areas that have importance for a single project," Garten says. "To have a taxonomy that allows you to pull it all together and quickly access that information is critical."

cision Portal 4 will be available later this month. Intranet licensing ranges from \$60 per user for more than 10,000 seats to \$300 per user for fewer than 500 seats, and maintenance is included. For extranet use, a license costs \$50,000 per processor for unlimited users, and also includes maintenance.

InfoImage: www.infoimage. com

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his company. Poten has used the InfoImage Freedom Portal since last August, but Garten has looked for a way to analyze dis-

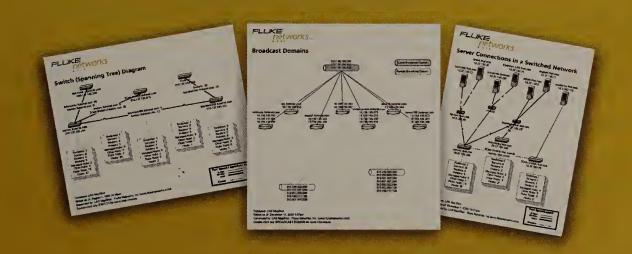
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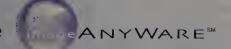
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# Infrastructure providers revamp to face tough times

BY JENNIFER MEARS

Some big Web hosting companies and infrastructure providers are finding some rough going, laying off staff, reducing capital expenditures and announcing other cost-cutting measures, as they position themselves to ride out the shaky economy.

Last week, hosting company

Digital Island and infrastructure provider Loudeloud announced layoffs. Exodus Communications saw executive changes and a week earlier said it would impose a hiring freeze, cut capital expenditures by \$300 million and implement other costcutting measures.

"It's the indigestion period," says Carrie Lewis, an analyst with The Yankee Group. She says these companies are trying to find stable footing as they deal with market consolidation and a transition from dot-com customers to enterprise clients that demand more advanced services.

"There have been a lot of partnerships formed, mergers have occurred, and everyone is transitioning from a dot-com customer base toward an enter-

prise customer They're base. building out their offerings from a collocation situation to a managed services situation," she says. "There's a lot going on. Everyone is trying to do a lot of different things and it doesn't happen overnight."

In the past, Web hosting firms had plenty of business

serving dot-coms. But, now, with many dot-coms going bust, hosting firms are turning their attention to corporate customers, which are feeling the pinch of a tight economy and may be reluctant to outsource. As a result, the once cash-flush hosting companies are forced to pull back, analysts say.

"Companies that had been growing at tremendously high rates, are running into a brick wall of tougher sales and diminishing demand," says Joel Yaffe, a senior analyst at Giga Information Group.

There's no question Web hosters are making some inroads with the enterprise market. Exodus, for example, says corporate customers now represent 62% of its monthly recurring revenue and bookings, compared to 44% a year ago. But that doesn't mean cuts aren't necessary, Lewis says. She says any organization not thinking about cost-cutting, streamlining operations and enhancing services is going to be in trouble. She predicts most hosters will put off data center buildouts in the near future.

#### **Aquisition season**

In the meantime, analysts say they expect to see more acquisitions or mergers, especially as telecom and IT services companies enter the market. Some examples: WorldCom is acquiring Digex, and Exodus acquired GlobalCenter from Global Crossing. Exodus is rumored to be a buy target, too.

Analysts say Exodus seems to be the strongest of all the standalone Web hosting companies, although its acquisition of GlobalCenter pulled down its first-quarter numbers.



Exodus CEO Ellen Hancock says recent executive departures were part of the normal course of business.

Still, Yaffee predicts corporate customers likely will be more willing to outsource with a company they know and trust — such as an IBM or an AT&T — rather than an independent Web hoster with a shorter track record.

#### Fleeing executives

Exodus is still working through its integration with GlobalCenter and last week announced the departure of several top executives. The resignations of CFO R. Marshall Case, COO Don Casey and Chief Marketing Officer Beverly Brown follow April's earnings news that Exodus posted a net loss of \$118.3 million.

CEO Ellen Hancock says Case and Brown left for personal reasons, while Casey's departure resulted from organizational changes stemming from Exodus' acquisition of GlobalCenter and its focus on the global marketplace.

Casey's duties will be split between Hancock and other executives, including Laurie Priddy, former COO of Global-Center, Hancock says.

Dick Stoltz, who has been a senior adviser for strategy and finance at Exodus since he stepped down as CFO and COO last year, will serve as CFO until a permanent replacement can be found, Hancock says.

Loudcloud, a managed infrastructure provider that doesn't own its data centers, also announced cost-cutting measures last week, including a 19% reduction of its staff, or 122 positions. The cost-cutting measures will help Loudcloud "reach cash flow breakeven" with its existing resources, company officials said in a statement. The cuts follow Loudcloud's disappointing IPO in March. The company says the cuts won't affect its customer support or research and development efforts.

Exodus: www.exodus.com; Digital Island: www.digitalis land.com; Loudcloud: www. loudcloud.com; Digex: www. digex.com

## Besieged CLECs continue to flounder

BY MICHAEL MARTIN

Last week's resignation by Teligent CEO Alex Mandl and the closing of upstart carrier 2nd Century's doors capped another devastating month for the embattled competitive local exchange carrier industry.

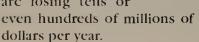
Those happenings followed on the heels of wireless CLECs Winstar and Advanced Radio Telecom (ART) filing for Chapter 11 bankruptcy protection. April also saw Rep. Billy Tauzin (R-La.) and Rep. John Dingell (D-Mich.) begin to push a bill through the House Commerce Committee that could make it even tougher for CLECs to offer DSL services.

What's more, observers say there are no signs things are going to get better for CLECs any time soon.

"The reality is that almost no CLECs are profitable and most are saddled with massive debt," says Jeff Moore, an analyst with research firm Current Analysis.

He expects most CLECs to continue to struggle through the remainder of the year.

He cited Time Warner Telecom and Pac-West Telecomm as two CLECs that are turning a profit. Unfortunately, there are many more companies like Teligent, which are losing tens or



The main problem for CLECs is that the telecom market is oversaturated, observers say.

#### **Troubled times**

Some of the CLECs that have run into trouble recently include:

#### Winsta

- Provides local and long-distance voice, as well as data services to business customers over fixed wireless equipment.
- More than 13,000 customers in over 4,400 buildings.

#### Teliaen

- Serves local and long-distance voice and data to business customers over fixed wireless.
- More than 35,000 customers in over 4,400 buildings.

#### 2nd Century

- Serves local and long-distance voice, Internet, Web server, e-mail, remote LAN monitoring and other services to small and midsize businesses.
- Number of customers not available.

And with venture capital funding all but closed to competitive carriers, many CLECs are quickly running out of money.

In the cases of Winstar, ART and Teligent, Moore says a reliance on broadband wireless technology has added to

the difficulty of operating in a crowded market.

"There's very little indication the business telecom market has accepted LMDS (Local Multipoint Distribution Services) as a mission-critical technology," he says. "Businesses are uncomfortable with the idea that their

network could go down because bad weather interfered with the wireless connection."

Customers of CLECs that

have filed for bankruptcy protection won't necessarily get left in the dark, despite horror stories in the wake of shutdowns by NorthPoint Communications and others. Winstar and ART continue to operate despite their bankruptcy proceedings. Observers believe that another provider will probably snap up their customers.

For any companies considering signing a CLEC contract, Moore suggests they develop some financial acumen. Key items to look at are a CLEC's cash burn rate — how quickly it goes through money — its dcbt load, how close the company is to profitability, and whether there is a well-thought-out business plan.

Finally, Moore says, it's always a good idea to have a back-up plan in case a telecom provider joins the ranks of the CLEC deceased.

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O1.   Manufacturing (other)   10.   Education   18.   Other (please specify)	Please indicate the Network hardware/software/services that you are currently involved in purchasing or plan to purchase: (check ALL that apply)  A. Currently involved in purchasing  B. Plan to purchase
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P: What is your primary job function? (check ONE only) S: What is your secondary job function? (check ALL thal apply)  P S P S P S  1. Network Management 5. Internet/Intranet/ 8. Consultant (Independent) E-Commerce Management 9. Other (please specify)	13.   Network Management   20.   Groupware   27.   Document Management (incl. SNMP)   21.   E-Mail   28.   Site Metering Tools     14.   Systems Management   22.   Enterprise Resource Planning   29.   Data Warehousing (ERP)   30.   Anti Virus Software     16.   Directory Services   23.   EDI   31.   Multimedia     17.   Operating Systems   24.   Desktop Videoconferencing   32.   Helpdesk     18.   Applications Development Tools   25.   Imaging   33.   Other Software/Applications     19.   Database Management/RDBMS   26.   Middleware/Serverware
□ 3. □ Datacom/Telecom Management □ 6. □ Engineering Management □ 4. □ CIO/CTO/IS/IT/MIS/ □ 7. □ Corporate Management (CEO, Systems Management □ 7. □ Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.)  What is the estimated value of Network equipment and services that you specify, recommend, or approve the purchase of?	SERVICES  A B  34. B BPO (Business Process Outsourcing incl. Financial Services, HR, Logistics, etc.)  A B  A B  35. ASP Services  38. Education/Training Services  38. Other Services A B  Services, HR, Logistics, etc.)  37. Systems Integration/Consulting None of the above (1 – 39)
(Please print the appropriate number code on the line next to each product category. Please complete ALL categories A-O.)  1. \$100 Million or more  ALarge Systems  HInternetworking	Please indicate the platforms that are currently installed/planned: (check ALL that apply)  A. Currently installed  B. Planned for purchase
2. \$50 Million to \$99.9 Million 3. \$25 Million to \$49.9 Million 4. \$10 Million to \$24.9 Million 5. \$1 Million to \$99.9 Million 6. \$100,000 to \$99,999 7. \$50,000 to \$99,999 8. Under \$50,000 9. None of the above 6. Carrier Services 6. Carrier Services 7. \$50,000 to \$99,999 8. Under \$50,000 9. None of the above 9. None of the above 1. (Mainframes/Minis) 9. Desktops (Mainframes/Minis) 1. (Including Routers, Switches) 1. Internet/Web/E-commerce 1. Internet/Extranet 1. Internet/Extranet 1. Peripherals 2. Software 3. Software 4. Software 4. Software 5. WAN Equipment 6. Carrier Services 9. None of the above 9. Storage 1. Internet/Extranet 8. Remote Access 1. Peripherals 9. Software 9. Software 9. Software 9. Software 9. Storage	NETWORK PROTOCOLS
9. None of the above G Carrier Services O Storage .*  What is the total number of sites for which you have purchase influence?	11.   Gigabit Ethernet   17.   Layer 3,4 Switching   23.   DSL   12.   Switched Ethernet   18.   FDDI   24.   ISDN   13.   Fast Ethernet   19.   100Base-T   25.   Frame Relay   14.   Ethernet   20.   10Base-T   26.   Private Line T1, T3, FT-1, SONET
(check ONE only)	☐ 15. ☐ ATM ☐ 21. ☐ Fibre Channel ☐ 27. ☐ Other LAN/WAN Environment ☐ 26. ☐ Token Ring/Token Ring Switching ☐ 22. ☐ Wireless LANs
1. □ 100+ 2. □ 50 to 99 3. □ 20 to 49 4. □ 10 to 19 S. □ 2 to 9 6. □ 1 7. □ None  What is the total number of Servers/Clients/LANs installed/planned at your location/	15.
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8. 
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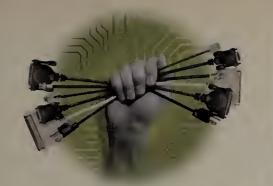
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# Briefs

Intel this week is expected to announce the Intel PRO/1000T IP Storage Adapter, an iSCSI-compatible network card that enables the transport of storage data over Gigabit Ethernet networks. The adapter also offloads the TCP stack from the server CPU to the adapter hardware to free computing cycles for the CPU, increase network performance and give quicker access to data. The PRO/1000T IP Storage Adapter will work with existing PCI-bus servers and future InfiniBand boxes. The adapter will be available by the end of the year. Pricing has not been determined.

Entrada Networks this week will announce its Silverline-WDM Optical SAN Extender, a device that increases the distance geographically separated storagearea networks can span. The Extender increases the distance from 30 miles to as much as 50 miles and is able to share the optical wavelength with other Gigabit Ethernet, Enterprise Systems Connection, Fibre Connection or SAN datastreams. The Extender will ship in the first quarter of next year. Pricing was not available. Entrada: www.entradanet

works.com

Intel: www.intel.com

Linux database vendor NuSphere rolled out a product for Web site customers last week that integrates the Apache Web server, Perl and its database, MySQL Advantage. MySQL Advantage will allow faster deployment of Web sites and includes support for financial transactions. Enhanced MySQL also includes RPM Package Manager support for Red Hat Linux, which features encryption support for Windows. NuSphere MySQL Advantage is \$300 per server.

NuSphere: www.nusphere.com

# Cisco strengthens remote VolP options

BY PHIL HOCHMUTH

isco last week unveiled a voice-over-IP gateway that is designed to keep remote office IP phones online even if the site's WAN link fails.

The gateway could appeal to users who may have balked at deploying centrally managed voice over IP to remote offices due to a lack of back-up options for ensuring IP dial tone if a data line goes down. The gateway was part of a slew of IP voice software products Cisco rolled out aimed at improving end-user productivity with converged voice/data applications.

Cisco's Catalyst 4224 Access Gateway

Switch is a voice-over-IP gateway router targeted at enterprise branch offices with up to 24 users. The device includes 24 10/100M bit/sec Ethernet switch ports, which can provide in-line power to IP telephones, choice of several WAN interfaces and firewall capabilities through Cisco IOS software.

The Catalyst 4224 also provides what Cisco calls Survivable Remote Site (SRS) telephony, which lets the box keep phones lines up even if the WAN link back to a central Cisco Call Server goes down.

In the past users either had to put a Call Server in a remote site to ensure phone connectivity or have a back-up analog phone line in case of a failed WAN link. According to Cisco, the Catalyst 4224 is able to sense if a WAN link fails and reroute calls over a back-up ISDN line, with call control being provided by the switch. Cisco has also made an upgrade to its IOS software that will let Cisco 2600 and 3600 routers perform SRS voice failover.

The ability to have centralized call servers with minimal equipment at a branch office is important to Tony Farinacci, senior vice president of enterprise technology at KeyCorp, a banking firm in Cleveland. Farinacci is testing the Catalyst 4224 and plans on using the box for voice over IP in some of Key's 920 bank

See Cisco, page 28

#### Fail-safe voice over IP

Cisco's Catalyst 4224 Access Gateway Switch uses Survivable Remote Site (SRS) technology to reroute IP voice traffic over ISDN lines in the event of a WAN link failure.



## Load balancing, security devices on tap from Avaya

BY PHIL HOCHMUTH

LAS VEGAS — Layer 4 and Secure Sockets Layer encryption boxes on tap from Avaya this week could be useful in balancing loads among Web servers or firewalls and speeding up encrypted Web traffic.

The company's new modular and stackable LAN switches are aimed at users who want to connect groups of PCs and servers to a network backbone over copper Gigabit Ethernet links. And to manage it all, the company is offering Version 4.0 of its CajunView network management software.

The P333R-LB stackable load-balancing

switch supports Layer 2 and Layer 3 switching, and can also inspect packets at Layer 4 to determine their port destination, letting the box forward traffic to the most available server in a server farm.

The SSL-100 is an SSL acceleration device designed to sit in front of a secure Web server and offload the encryption of sensitive Web traffic — such as e-commerce customer information or credit card numbers — from a Web server's CPU.

The box supports key exchange standards such as RSA, DSS and Diffie-Hellman, and is compliant with SSL Versions 2 and 3. The technology for the SSL-100 comes from CyberIQ, which Avaya

acquired in March.

The Avaya P130 is billed as a work-group switch, with 24 10/100M bit/sec Ethernet ports and two fiber slots for Fast Ethernet or Gigabit Ethernet uplinks.

The P332G-ML and P332GT-ML are 12-port Gigabit fiber and copper switches for aggregating groups of P130s or connecting server farms at gigabit speeds to a backbone or Web connection. The boxes can also be outfitted with ATM modules for WAN connectivity.

The seven-slot P580 Routing Switch is an upgrade to Avaya's P550 chassis and uses the same adapters as Avaya's largest switch — the nine-slot P882.

See Avaya, page 32



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# Storage vendors to bolster security, fault-tolerance

DataCore, Finisar and Nishan packages to improve IP storage quality of service and management.

BY DENI CONNOR

LAS VEGAS — Storage vendors will show a slew of management and troubleshooting tools at NctWorld+Interop 2001 this week that will let IT professionals fix, secure and build fault-tolerance into their storage infrastructures.

DataCore, Finisar and Nishan Systems are introducing software and hardware that secures storage-area networks (SAN) against data intrusion and creates fault-tolerant configurations for protecting data.

DataCore is announcing the next version of its storage resource management software, SanSymphony 4.0, which handles local and remote replication, mirroring of data and storage pools.

DataCore's storage virtualization software is being cnhanced to include local and remote replication, and mirroring of data over IP, letting customers configure faulttolerant storage networks and increase the availability of applications. In addition, the software will let users create a single storage pool from storage in geographically separate locations that can be managed from a single, consolidated management interface.

IT professional Bill Manning has an immediate use for San-Symphony's new features.

"We have three major projects coming up this year," says Manning, associate director for technical services for the Plumber's and Pipefitter's National Pension Fund in Alexandria, Va. "We are going to build a remote SAN at headquarters for disaster recovery. There, we'll be able to use IP mirroring over our existing T-1 to do that, as opposed to having to install ATM or dark fiber. It will be a tremendous cost savings to us."

Manning will also be building a redundant SAN on-site, which will be mirrored with the existing SAN to provide a real-time backup of data. In mirroring, changes are written to each disk concurrently, thus protecting against failure of one disk.

SanSymphony can also let data be mirrored from one location to another and replicated from the target destination to another location.

DataCore's SanSymphony 4.0 will be available immediately for \$20,000.

Manning, when called on to troubleshoot

a traffic or link problem on his network, brings in a systems

integrator who is trained in protocol and link analysis to help. He wishes there were easy-to-use more bleshooting tools for his SANs.

"It's hard to staff for this type of position because it's a specialized area," Manning says. "It's not something you need all the time, so to keep your skills on staff up is almost impossible."

#### Finisar's QoS

Finisar will roll out SAN QoS, a real-time monitoring, traffic analysis and troubleshooting product specifically designed for managing distributed, enterprise SANs. SAN QoS consists of portal software called Portal; Probe FC, which

> monitors Fibre Channel and SCSI devices such as storage arrays and servers; and

ViewsFC, a remote interface that makes long-distance browsing possible.

The Finisar SAN QoS supports Fibre Channel arbitrated loop SANs and switched fabrics, and 1G bit/sec Fibre Channel, as well as the upcoming 2G bit/sec specification. The portal software gathers, aggregates and records statistic from all available probes and makes it accessible to the ViewsPC. The Probe lets customers monitor access to a server or storage device, and gather statistics they can use to analyze exactly which devices are communicating through specific links. The Finisar Probe FC and Portal products are available for \$9,000 each, while the ViewsFC costs \$1,000.

#### **Nishan targets security**

Now that storage-over-IP networks are available, securing the data that flows over the IP link is a priority. Nishan is expected to announce Secure-SAN, a mixture that combines its Nishan 1000 and 3000 Storage Switches with firewalls from CheckPoint, NetScreen, RapidStream or SonicWall.

In a typical configuration, the Fibre Channel storage array and host would connect

to a Nishan 3000 and 1000 switch for transport over the network, which is protected from intrusion with a firewall. An IP router would connect to the firewall to the WAN. On the other side, an IP router would connect to a firewall, which would similarly connect to Nishan equipment. Available now, the Nishan IPS 3000 Series IP Storage Switch costs \$16,000 while the IPS 1000 Series IP Storage Switch costs about \$10,000.

DataCore: www.datacore. com; Finisar: www.finisar.com; Nishan: www.nishansystems.



## WatchGuard introduces high-end box for busy VPN sites

Firebox III device costs the same but is five times faster than previous box.

BY TIM GREENE

LAS VEGAS — WatchGuard is introducing a new high-end appliance that encrypts VPN traffic five times faster — but at the same price — as the company's former flagship equipment.

The new Firebox III security appliance will be introduced at NetWorld+Interop 2001 and will let users protect busy sites for \$10,000 — the same price

as the company's former fastest product, the Firebox II Plus.

"This is an excellent

price," says David Thompson, a box II family. senior analyst with Meta Group. By comparison, Nokia's IP530 VPN/firewall appliance encrypts Triple-Data Encryption Standard more slowly, at 50M bit/sec, and costs more, \$16,000. NetScreen's new NctScreen 500 encrypts faster at 250M bit/sec, but costs \$25,000 to \$50,000, depending

on configuration.

In addition to the Firebox III 4500, WatchGuard will introduce Firebox III 2500, which is based on the same chassis as the 4500 but is slower and costs \$8,000. By comparison, the basic Firebox II model costs \$5,000. Both models include a 197M bit/sec firewall.

The Firebox III family is based on a new chassis built

> around a 500-MHz processor, an upgrade from the 133-MHz processor that powers the Fire-

WatchGuard is adding an accelerator card to boost the encryption speed of the 2500 from 45M bit/sec to the 100M bit/sec speed of the 4500.

WatchGuard says it is working on new drivers for the encryption processor in the Firebox III chassis that will further boost encryption speed.



WatchGuard's Firebox III features a 500-MHz processor and can support 5,000 simultaneous users.

The Firebox II family was also built on a common chassis, with an accelerator card being added to the Firebox II Plus to boost its encryption speed. With the Firebox III family, WatchGuard is using an accelerator card made by SafeNet to boost the encryption throughput.

WatchGuard says it will continue to sell and support Firebox IIs but expects that over time, customers will opt for Firebox IIIs instead.

The Firebox III and Firebox II products are designed to support 5,000 simultaneous authenticated users, Watch-Guard says.

High-end VPN gear intended

for the largest companies and service providers supports tens of thousands of simultaneous users. The Net-Screen 500, for instance, supports 10,000 simultaneous VPN users.

WatchGuard says it remains focused on protecting sites for large, but not the largest organizations nor service provider networks.

Some service providers, including WorldCom and RipTech, use WatchGuard gear as part of managed VPN service offerings.

WatchGuard is also announcing a new service package called Gold LiveSecurity, which includes 24-hour monitoring and guarantees onehour response time to fix problems. The service costs \$3,000 for a Firebox III 2500 and the cost is \$4,000 for the Firebox III 4500.

Both Firebox III boxes are available next month.

WatchGuard: www.watch guard.com

Be sure to visit our partner pavilion at NetWorld<sup>sM</sup> + Interop® 2001, Las Vegas, Booth 1414, May 8-11 Visit: www.dlttape.com/news/events/N+ISpring for more partner information.

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IN-SITE: Lessons from Leading Users

# Kmart shines its Blue Light on solid state disks

BY DENI CONNOR

hen Kmart relaunched its Blue Light Special this year, the company needed a highspeed storage technology to handle the load of its outbound e-mail and targeted mailing to customers.

Kmart chose solid state disk technology from Imperial Technology, which speeds up mail delivery by caching the large, frequently used files in solid state memory.

Solid state disk technology is used by many Web sites, such as Yahoo and eBay, to store frequently used files such as e-mail message queues, database logs or transactions, which are too large and too slow to read from conventional disk. Data transfer suffers from an imbalance between the speed of the CPU and the slow nature of disk drives.

With solid state technology, those files that are used most often are stored on the solid state disk where they are instantly available. The remaining data — the messages themselves — are stored on a conventional disk, speeding up a part of the process that is critical to operations.

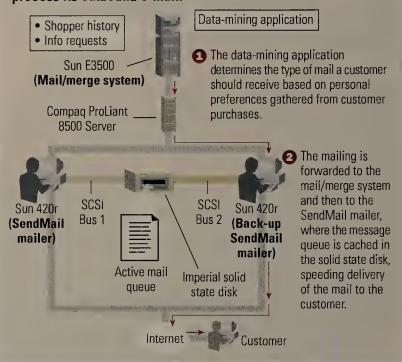
BlueLight.com, Kmart's e-commerce site, lets users shop on the Web but also serves lots of data — such as the targeted mailing campaigns Kmart sends to its customers.

Once Kmart has collected the name of a buyer and analyzed his purchase or interest, the company can send mailings to that user based on personal preferences and previous purchases. For instance, if a shopper buys a fishing pole online, Kmart might want to update him via e-mail when hooks or bait goes on sale.

San Francisco-based Blue-Light.com uses solid state technology specifically designed to handle large volumes of data and move it to users more quickly. The Web site handled 8.5 million unique users during the November and December 2000 holiday season, according to Media Metrix, an Internet

#### Kmart's BlueLight.com e-mail setup

BlueLight.com uses solid state disk technology to quickly process its outbound e-mail.



media measurement service.

The BlueLight.com network consists of a Solaris server that merges mail as it comes in from the Internet and hands it off to a data-mining application

on a back-end Compaq Pro-Liant 8500 server. The datamining application analyzes individual mail messages, shopper history and information requests and lets Kmart

decide which type of targeted mailing to send the customer.

From there, a mailing can be generated that fits the user's profile. That mail is passed to two Solaris 420R workstations equipped with a solid state disk. The Solaris 420Rs are clustered for redundancy, and a 2G-byte solid state disk is shared by each of the 420Rs. If one 420R fails, the other takes over.

Individual mail messages are stored on the 420Rs; the message queue is cached on the solid state disk. Mail is then passed back out to the Internet as fast as 150,000 per hour. All of BlueLight.com's equipment is colocated at a data center elsewhere in San Francisco.

BlueLight.com's uses Send-Mail as its mailing software. Like many mail systems, where messages are stored on disk and need to be retrieved, Send-Mail is very disk I/O-intensive, says Jonathan Loran, senior network administrator with BlueLight.com.

"In order to accelerate the

[SendMail] application, we went with a solid state disk instead of using hard disk. We put the active mail queue on solid state disk," he says.

According to Imperial, the solid state disk is designed to send out 250,000 mail messages an hour. The solid state disk operates at least 100 times faster than server hard disks, the company says.

Solid Data also makes solid state disks, but Kmart did not evaluate other vendors for this implementation.

Solid state disk technology is expensive but worth it for many users. In the case of Loran at BlueLight.com, spending that much money to speed up e-mail processing is essential. A 4G-byte solid state drive can cost as much as \$65,000.



Cisco,

continued from page 23

branches in Ohio and New York.

"We didn't want to deploy [call servers] across all our branches," Farinacci says. "That was not the most cost-effective architecture," in terms of the cost of the equipment and support for each branch.

Farinacci calls Cisco's new centralized voice-over-IP architecture "the best of both worlds from a support point of view, because you have a centralized call manager cluster that you can support from one or two data centers. Then you have the benefit of local survivability in your branches in the event you have some type of [WAN] circuit failure, which is extremely important to us."

One analyst says keeping remote sites up is a critical feature for companies that are considering voice over IP in their branch locations.

"For enterprises considering IP telephony in the past, the prior lack of remote survivability was an insurmountable barrier," says Joel Conover, a senior analyst with Current Analysis.

By having limited call control features in the Catalyst 4224, network professionals don't have to choose between putting a call server in remote sites to ensure dial tone or risking lost phone connections to the branch if a WAN link fails.

The Catalyst 4224 will compete with branch office voiceover-IP gateways such as Alcatel's Media Gateway and Avaya's R300 Remote Office Communicator.

Other products announced include Cisco Personal Assistant, Cisco IP Integrated Contact Distribution (IP-ICD) for small call centers, an XML software upgrade for Cisco IP phones as well as upgrades for Cisco's Unity unified messaging software CallManager server software.

Cisco Personal Assistant is an application that the company says will let users establish rules for taking incoming calls, as well as managing e-mail. A graphical

interface lets users set rules for screening and forwarding calls to a home or mobile phone. Voice commands can also be used to sort through e-mails and establish conference calls by group or individual names.

The IP-ICD software is call center software for offices with up to 48 agents. The software provides call distribution to agents and integrates with Cisco's IP voice response and autoattendant applications.

Cisco's IP Phone Productivity Services is a suite of XMLbased tools that will let users access information such as stock quotes, e-mail, voice mail and calendar data from the LCD screen on Cisco 7960 and 7940 IP phones.

The latest version of Cisco's unified messaging software, Unity 2.46, comes with expanded language support and diagnostic tools for supporting large-scale deployments across multiple time zones.

The Cisco CallManager 3.1, which runs its call server IP PBX, now supports extension

mobility, letting end users log on to any phone in a company and receive calls at their fourdigit extensions.

The software also has support for SRS telephony on the Catalyst 4224 and Cisco 2600 and 3600 routers.

Most of the new Cisco voiceover-IP products will be available in the second quarter.

The Catalyst 4224 is priced at \$13,000, while SRS IOS upgrades for Cisco routers cost \$750 for 24 users. Cisco Unity 2.46 costs \$146 per seat, and the IP-ICD and CallManager 3.1 cost \$5,000 and \$6,000, respectively. The Cisco IP Phone Productivity Services software will be available in the third quarter, with pricing to be announced.

Cisco: www.cisco.com



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In Motion

### Compaq drops 32-way Microsoft DataCenter server

BY JOHN FONTANA

Compaq last week became the second major vendor in a month to scrap

the 32-way servers it was selling preloaded with the DataCenter version of Microsoft's Windows 2000. Hewlett-Packard had canceled its plans in April.

The decisions, however, may be more a testament to IT executives' lack of interest in 32-way Intel-based servers and not a comment of Microsoft's Data-

Center software.

DataCenter is the high-end Windows 2000 server launched late last year that requires hardware manufacturers to test and certify the operating system running on their product.

DataCenter is Microsoft's answer to Unix servers that run core applications for large firms. It is intended for largescale online transaction processing, databases, data warehousing and enterprise resource management software.

The 32-way configuration is the maximum number of supported processors for DataCenter. On the low end, the server supports eight processors.

But the 32-way model is selling poorly, and Compaq, which helped Microsoft develop the DataCenter program, follows HP as companies that have ceased shipping 32-way DataCenter servers.

"The 32-way servers are way ahead of where the market wants to be," says Rob Enderle, an analyst with Giga Information Group. "Customers want to buy these types of servers from the manufacturers, not an OEM."

Compaq licenses its server, sold under the name ProLiant ML770, from Unisys, as do other 32-way vendors including Dell, Hitachi and ICL.

Unisys officials say they have sold 350 of the 32-way servers, and that 50% of them have been loaded with DataCenter.

"Compag is more comfortable with the scale out option of adding more servers, where we are focused on the scale up capabilities of the 32-way system," says Pete Samson, vice president and general manager for technology sales development for Unisys."We were counting on Compaq to provide that scale-up architecture to their customers, but now they have taken away that option."

Compaq said it will focus sales efforts on DataCenter running on its eight-way ProLiant 8500 hardware, which accounts for nearly 95% of its DataCenter sales. It will continue to work with Unisys to provide support to existing ML770 customers after the product stops shipping on May 31.

Compaq said it's developing its own 32-way server based on Intel's forthcoming McKinley IA-64 chip. Codeveloped with HP, McKinley is a 1 GHz-plus processor that can run numerous operating systems.

"This was a decision based on economics," says Timothy Golden, Compaq's director of marketing for enterprise servers. "We can meet the needs of 95% of our customers with the eight-way platform."

"We are sorry to hear that Compaq and Unisys won't be working together on the 32-way platform," says Bob O'Brien, group product manager for the server group at Microsoft. "Compag made primarily what was a business decision."



Cisco

COMPAQ



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Avaya, continued from page 23

The P580 could be used as a backbone switch for a small or midsize company, or as a high-density wiring closet switch. The box will compete with products such as Enterasys' modular Matrix switch line and Cisco's Catalyst 4000 series boxes. (For more information on Avaya's competition, see page 34.)

CajunView 4.0 comes with new features including group configuration settings for similar network devices such as workgroup switches — and the ability to manage access control lists and quality of service on a per-port basis on network switches.

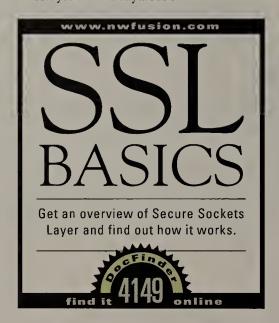
"[Avaya] has filled in critical gaps in its product line, with both their load-balancing switch and the SSL accelerator," says Peter Bernstein, a technology analyst and president of Infonautics Research.

While Avaya's new Gigabit products are interesting, Bernstein says, users are looking for tools that can improve the performance of existing enterprise infrastructures — such as bolstering server uptime or speeding up traffic encryption — rather than buying more pipes and ports to beef up a network.

Avaya's P333R-LB switch and SSL-100 are priced at \$11,000 and \$15,000, respectively. The fiber-based P332G-ML and copper-based P332GT-ML cost up to \$8,000 and \$6,545, respectively.

The P130 workgroup box costs \$2,000, and the P580 backbone switch goes for \$14,950. CajunView 4.0 costs \$2,450.All products are available now.

Avaya: www.avaya.com



#### Xora boosts mobile data access

BY JOHN COX

MOUNTAIN VIEW, CALIF. - A wireless software vendor has introduced a server application intended to simplify the work of connecting handheld users with corporate data.

For users, the Xora application means they can extend vital corporate data, not just e-mail and calendar changes, to a broad range of mobile devices and do that without the costs and delays of custom programming.

The software from Xora acts like a telephone switchboard operator, finding what the client wants and then making a connection to the other party, in this case a company database or application.

The requested data typically is displayed via a browser on the handheld. Or, using special voice-processing software, Xora lets users with wired or wireless telephones speak their requests and hear the results.

With the Xora middleware, network managers could let roaming field techni-

cians, job site inspectors or delivery staff use a Web phone to access, over a wireless link, a corporate time-and-expense application, project data, trouble-ticket status and the like.

Xora is one of several new wireless "platforms" to emerge recently, such as Aether Systems' Aether Fusion (see www.nwfusion.com, DocFinder: 4141) aimed at bringing enterprise data to wireless devices.

Xora runs on a Web server, with a set of connector programs to link with selected database and applications. Handheld users log on to the Web site, via a wireless PDA or a Wireless Application Protocol Web phone or even a regular voice call passed through a voice

The Xora software is available now and is deployed at four customer sites: AT&T, Fujitsu, World Commerce Online and Home Finishes. Pricing is \$150,000 to \$200,000 for 20 users, including the voice recognition software.

Xora: www.xora.com

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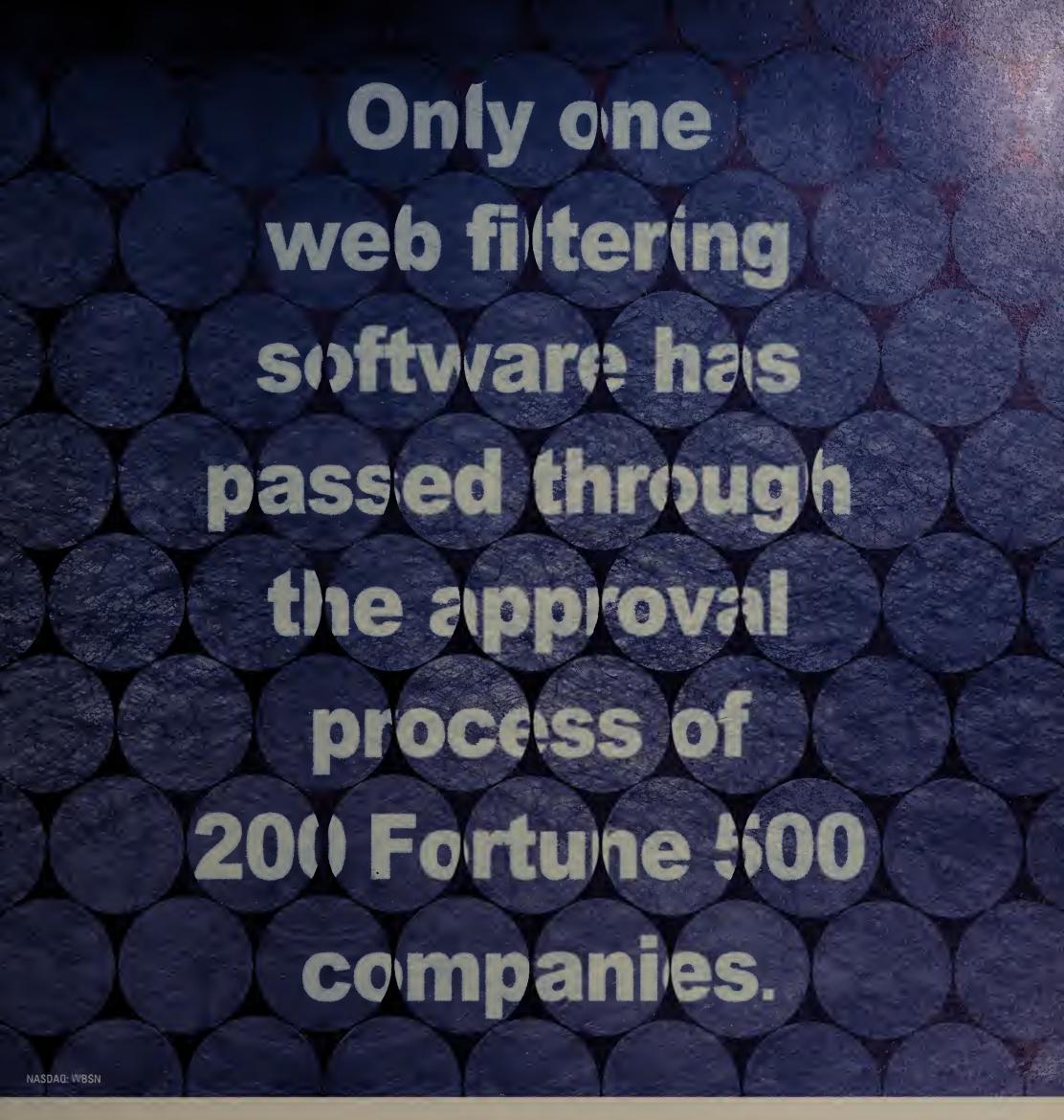
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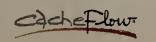


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# Avaya sets its sights on firms with converged networks

BY PHIL HOCHMUTH

ix months after being spun off from Lucent,
Avaya has made several moves to shore up product lines where it lacked technologies. Still some nagging questions still remain for Avaya's top executives, such as whether Cisco will run roughshod over the IP telephony and customer relationship management markets — key areas for Avaya — and if the company can boost its LAN switch business and its Ethernet switch port market share.
While Avaya CEO Don Peterson is aware of those issues, he is taking the firm in some new directions.

First, Peterson sees CRM as a key area where his firm can gain ground on its two largest enterprise foes: Cisco and Nortel Networks. Avaya has been strong in the call center market for years with its industry-standard Definity PBX and telephone handsets. (Almost one-third of Fortune 500 companies use Avaya's circuit-switched telephony gear.) In February, Avaya snapped up CRM firm Quintus for \$30 million. Quintus makes software for managing customer orders, order inquiries and service requests with one application that ties together phone and e-mail systems along with Web technology.

The Quintus acquisition drew high marks from analysts, with a report from Current Analysis stating, "Avaya may be on the inside track to build a strong presence if it can exploit Quintus' previous partnerships and installed base."

According to Lawrence Byrd, CRM evangelist at Avaya and a former Quintus executive, previous partnerships between Avaya and Quintus will allow for an extremely short learning curve for integrating the technology from the two firms.

"What the acquisition of Quintus is doing is accelerating Avaya's already existing investment in this area of what we call CRM interaction management," which involves how businesses handle customer calls, e-mails and Web inquiries on a case-by-case basis, Byrd says. What Quintus gives Avaya, he adds, is a finely honed level of CRM capabilities to run on top of its hardware infrastructures.

"CRM is the level that says,'I care more about the customer ... and less about how the bits and bytes move around on the bottom of the communications infrastructure,'" Byrd says.

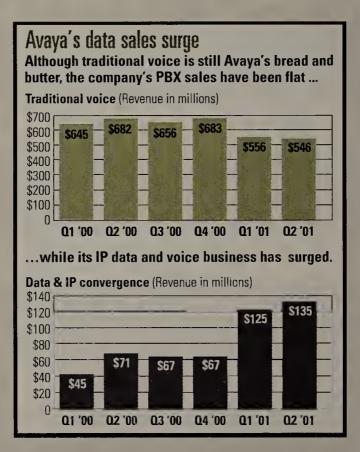
Realizing those infrastructure changes are coming, Peterson made one of his first objectives to augment Avaya's IP product business.

"We've made changes in our sales organization to put much deeper data skills in senior management positions," Peterson says. "We then worked down the organization to integrate more data skills ... We're going to be better equipped to help data [salespeople] deal with voice, than we've been successful to get voice people to be data salesmen."

The result of these changes, Peterson says, was a 100% boost in sales for data and IP convergence prod-

#### **GAINING GROUND**

The former Lucent spinoff is building itself up through acquisitions.



ucts from the fourth quarter of fiscal year 2000 (which ended in September 2000) to the first quarter of fiscal year 2001, going from \$67 million to \$125 million in one quarter. These products include Avaya's IP telephony gear and Cajun LAN switches. The company showed it could sustain the success last week when it announced that its data sales continued to grow in the second quarter of 2001, with revenue of \$135 million.

In addition to debuting a line of IP telephony servers, handsets and software — dubbed ECLIPS (Enterprise Class IP Solutions) — in the fall, the company also made some moves to fill holes in other IP network product lines.

In January, the company spent \$120 million on VPNet, a start-up that makes equipment for creating secure site-to-site private networks and remote user network connections over the Internet. In March, the company shelled out an undisclosed amount for the rights to three products from CyberIQ Systems: two encryption acceleration products and a Layer 7 URL switching appliance. Up until the time of these purchases, Avaya resold VPN products from Lucent, and Web switching technology from Alteon WebSystems

(which is now owned by rival Nortel Networks). Another product area where Peterson hints at expansion is wireless.

"We're a pure reseller in the wireless arena," Peterson says, adding that while Avaya gets good business from reselling Lucent's Orinoco line of 802.11b wireless LAN (WLAN) products, "We would like to have more intellectual property in that space." He says the company is developing its own WLAN products. He also did not rule out the possibility of an acquisition in the near future to make WLAN a wholly owned product offering for Avaya.

While Peterson sees ECLIPS and other IP products as the future of enterprise telephony and call center infrastructure, he says phone technology and CRM will operate in a hybrid world for the next several years. This could give Avaya a leg up on Cisco, which has no traditional PBX or call center installed base, and Nortel, which Peterson sees as having shifted its focus more on the service provider market.

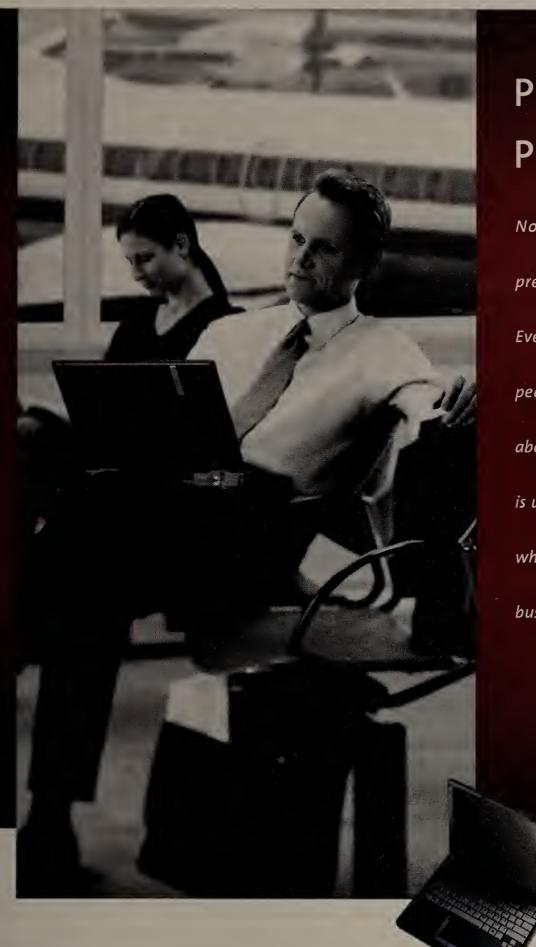
As for the competition, Cisco has been working full steam on developing and marketing its voice-over-IP products, which are part of its AVVID (architecture for voice, video and integrated data) product strategy. Cisco has also strengthened its CRM and unified messaging technologies with the purchases of WebLine Communications and Active Voice during the past two years.

During the same time period, Nortel has been active in beefing up its own CRM presence by making partnerships with industry leaders such as SAP and acquiring its own technology from its purchase of Clarify.

Cisco and Nortel present formidable challenges for Avaya, Peterson admits. The two companies are No. 1 and No. 2, respectively, in the enterprise switch market, while Avaya still has not cracked the top 10. While Cisco is using its considerable power in datacom market share to work its voice and CRM products into companies, Nortel, like Avaya, is looking to tap its large PBX (Meridian) installed base for selling converged telephony and CRM systems.

While Cisco and Nortel remain strong in market share, both companies have suffered financial difficulties with layoffs coming as a result. Avaya's recent fortunes have been a bit better. Cisco and Nortel have seen their revenues drop by as much as 20% during the last quarter, while Avaya recently reported a 1% gain in revenue between its first and second fiscal quarter (which ended March 31). Although the increase wasn't huge, Peterson says, growth is growth. He attributes Avaya's focus on enterprise as one reason his company has avoided problems, where as his competitors have been hurt by slowdowns in carrier spending — a market in which Avaya does not have a huge stake.

If Avaya can slowly but steadily turn its legacy PBX installed base into a gold mine of revenue for converged network gear and CRM platforms, Peterson's predictions will be on the money.



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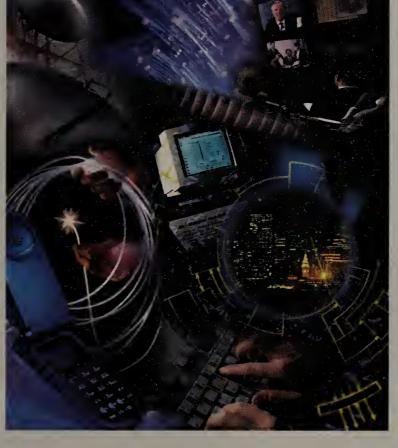
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# Adding Value and Revenue with Content Networking



With the creeping erosion of margins on basic services, service providers are turning to Content Networking to deliver advanced applications for content portals, enterprises and consumers.

Every network can benefit from more brains, speed and scalability. And the Internet's no exception as it evolves into the preferred business infrastructure for the new millennium.

Content Networking solutions hold the key to transforming today's Internet data infrastructure into a reliable medium for delivering content services within enterprises, as well as B2B and B2C business environments — creating unprecedented opportunities for service providers. Content networking also enables new, mission-critical intranet applications such as e-learning, extranet applications and supply chain management, and Internet applications such as customer care, e-commerce and portal services.

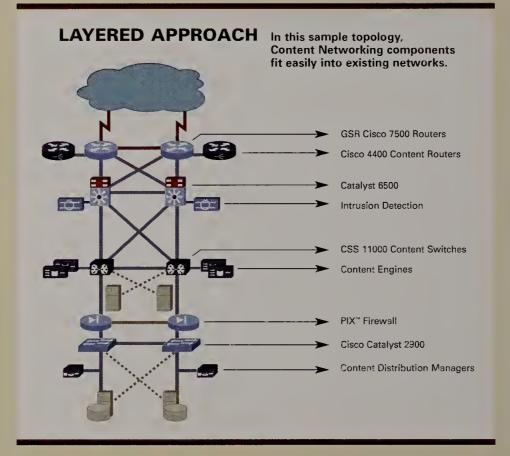
With Content Networking technology, businesses will move beyond gray text interspersed with the occasional static graphic. Hi-res video clips will pop and flash without the waiting or timeouts. Online catalogs will transcend spec-sheet drabness with image files and the ability to examine products in three dimensions. Millions of users can attend the same online event without bringing down the hosting site or jamming an Internet peering point. Advertisers can serve up

personalized ad banners and relevant promos to prequalified viewers. As Content Networking improves network performance for ISPs and enterprises, the cascade effect onto portal operators, content developers and online customers means compelling new content for a richer Web experience and compelling new applications that increase revenues and customer loyalty.

### Services Squeeze

Service providers aren't embracing Content Networking because they think it might be cool to have video on demand. Rather, the recent commoditization of bandwidth has squeezed nearly all the profit margin from the voice business and, increasingly, from Internet access and other managed IP services for businesses and consumers. So, if service providers are to remain healthy and competitive, they need services that are easy and quick to deploy as well as margin-rich. With Content Networking technology, service providers can offer new, highly differentiated services that scale up to the demands of the highest-volume sites, whether for security, handling flash crowds or reliably processing e-commerce transactions.

"In the future, Content Networking will raise the bar beyond static content delivery to support a variety of content types as well as global delivery of advanced services such as streaming video/audio on demand, content personalization, and dynamic application delivery," says Cheng Wu, vice president and general manager of Cisco's Content Networking Business Unit.



The public Internet and most intranets and extranets weren't designed to support time- and session-sensitive transactions, especially where large volumes of content and multiple simultaneous users are concerned. But if a browser request is timed out, the servers can't serve up content, the bandwidth won't accommodate the content, or the service logic can't discern whether the browser is in Japan or South Africa, then the customer never sees it and the revenue opportunity is squandered. Content is worth nothing if users can't quickly, consistently and reliably access it and act upon it.

Various industry consultants project the combined hosting and content delivery market will reach more than \$33 billion in 2004. By embracing such an opportunity, network operators can activate the high-growth services that differentiate them from a sea of competitors.

Enterprises have begun moving their mainstream business applications to the Web for better scalability, improved security and wider accessibility. Content Networking provides the richest, most-reliable service foundation for streaming, e-learning, workforce optimization, supply chain management, customer relationship management, e-marketing and online financial services. Recent industry research shows that nearly half of all enterprises plan to increase their use of outsourced services due to the challenges of attracting, training and retaining high-skill IT staff in a tight job market. Further, as many as 43 percent of enterprises surveyed are willing to pay a premium for outsourced services that increase their Web site performance.

### Benefits of Acceleration

Content Networking technology is what enables Web servers to respond to 100,000 sessions per second when average

capacity is only 500. Content Networking products administer Quality of Service policies to ensure there's sufficient endto-end bandwidth to activate a sustained streaming-media session. Further, it monitors and manages service level agreements (SLAs) specific to certain content types, as well as the billing for it. In making optimum use of network and system resources, Content Networking reduces server infrastructue costs, improves transaction reliability and ensures that security infrastructure scales effectively. It also brings the Web in line with what end users really expect from their Web experience. And, it increases customer loyalty.

Prior to Content Networking technology, entities as varied as ISPs, portal and extranet exchanges and Web hosting companies were forced to overprovision their networks, either with more bandwidth than they needed or with expensive servers that sat idle during nonpeak business hours or even seasons. But, using Content Networking

products, network operators can optimally distribute and serve content — static or dynamic — within data centers or PoPs, ensuring the fastest possible delivery to requesting users or customers by priority and type. Along the way, software algorithms decide where to replicate content, what language to present it in and what its shelf life ought to be. A combination of intelligent Layer 5-7 load balancing, routing and caching takes place to ensure maximum performance.

While static elements have proven more manageable, it's the dynamic content-animated ad banners, Java applets and rich media that can wreak havoc on performance and response times. And dynamic content can comprise 70 percent or more of the total page content, according to the Yankee Group. Content Networking allows Web servers to be specifically allocated to serve dynamic content, improving performance for suppliers and requestors of content.

Clearly, Content Networking intelligence underpins the growth of e-businesses, and Content Networks are becoming a critical element for business transactions of all sorts. Service providers are moving aggressively to build Content Networks to handle applications and streaming services, but in a way that controls costs, improves profit margins and ensures that they enter the market with such services more quickly than their competitors.

#### Enterprise Response

On the enterprise side, IT executives need the ability to push out content in massive volume. They want to easily accommodate flash crowds for an online concert. They want to be able to respond to the demand for serving up customized content based on geography, browser preference, buying history or other demographic data. And perhaps most important, they

(continued on page C4)

### Owest's Intelligent Content Environment Is Master Of Its Domain

In this day of the Internet, content may be king, but it's the intelligent management of the content that ultimately rules the kingdom. That's why Owest Communications, the broadband Internet communications company, has introduced content delivery solutions designed to enhance customers' ability to serve their static and rich media effectively, efficiently and intelligently.

Built on Cisco Content Networking technology, Qwest's suite of Intelligent Content Environment products provide a seamless, end-to-end solution for Internet and intranet content delivery.

"Businesses typically have thousands of users accessing their Web sites at any given time, so Qwest developed a solution to ensure that content is delivered securely and reliably," said Rick Weston, senior vice president, Qwest Internet Solutions. "The Qwest product suite dramatically reduces costs and resource constraints

that businesses face when trying to manage a Web environment."

With Intelligent Content Environment, customers are assured high-quality video, audio, graphics and other content is delivered with speed, accuracy and consistency, with significant cost savings. To meet the needs of large and small customers alike, Qwest has developed three distinct content delivery offerings:

- Content Switching Optimizes Web server performance with content-aware load balancing, reducing the need for additional server purchases and providing geographic fault tolerance by switching content between multiple locations.
- Internet CDN A pre-packaged solution that supports static and media content on a usage-based billing model. Customers using internet CDN do not have to invest capital in hardware and management resources as their content needs grow.

• Enterprise CDN – Reduces bandwidth costs by taking advantage of LAN speeds rather than relying entirely on dedicated Internet connections. This service is ideal for applications such as streaming media presentations and corporate training (e-learning).

According to Weston, Qwest expects the demand for content delivery services to expice over the next few years. "The pressure to outperform the competition coupled with users' high expectations is driving the demand for quality, reliable and fast delivery of all types of content," he said. "Working with Cisco, Qwest has the resources, network capabilities and knowledge to be the master of the content-delivery domain."





### Hard Rock Cafe turns to Content Delivery for the Ultimate Music Experience

For the past 30 years, Hard Rock Cafe has embodied the spirit of rock music. Since its founding in 1971, Hard Rock Cafe has become a leading entertainment and leisure company through music-related ventures relevant to all generations. With more than 100 cafés, in more than 36 countries, serving 28 million guests each year, Hard Rock Cafe continues to be the dominant rock connection for music enthusiasts worldwide. Playing music videos in the cafés enhances the musical experience Hard Rock offers its guests. To deliver high-quality music videos to each location effectively, Hard Rock required a sophisticated solution that would allow them to manage worldwide video distribution from the Hard Rock Cafe headquarters in Orlando, Florida.

Cisco provided a content delivery solution that integrated easily into Hard Rock's existing network. Cisco Content Engines are deployed at each café location and a Content Distribution Manager resides at headquarters for centralized management. Using local bandwidth to deliver videos within each location dramatically

improves performance and saves on WAN bandwidth costs. "We expect the solution to pay for itself within a year," says Ron Ward, senior director of information technology and online at Hard Rock. Not only has the solution provided better quality video, but delivering the content over an IP network versus overnight mail, has reduced costs and enabled a level of control otherwise unachievable.

Hard Rock also plans to use the equipment for other projects. "While we were planning the video project, we realized that this equipment would also allow us to implement e-learning," stated Scott Little, vice president of strategic planning and CFO of Hard Rock. "Hard Rock Cafe believes its employees are the company's greatest asset. We plan on using the CDN network for long distance training, or e-learning. Not only will this represent a cost-savings, but we will be able to provide a consistent quality training experience to all of our employees worldwide."

### Content's Advantage

Content Networking can do more than just accelerate performance and improve response times. A network that's content-aware can transform the data center of a service provider or an enterprise into a reliable medium for delivering content services, including:

#### Flash Crowd Insurance Services

Unpredictable, "event-driven" traffic surges called "flash crowds" can swamp servers and disrupt site services. With Content Networking technology, Web businesses can selectively protect mission-critical applications or high-priority content or customers from site outages due to unpredictable traffic surges for "hot" content. Site capacity scales dynamically and selectively – lowering overall infrastructure costs, eliminating need for manual intervention and reducing complexity of site management.

#### **Overflow Services**

Web sites operators must "overbuild" sites to handle seasonal or event-driven peak traffic loads to ensure revenue capture during business-critical periods (e.g., holiday shopping; during Webcasts or other promos). By employing Content Networking solutions, site capacity can be scaled on a temporary basis, reducing overall infrastructure costs and reducing complexity of site management. Web businesses can ensure e-Commerce revenue capture and site availability during business-critical periods.

### Advanced L5-7 Local & Global Server Load Balancing Services

Data centers and PoPs can't scale capacity to keep up with exponential growth in traffic volumes. Content Networking solutions are capable of examining the full URL prior to routing a request for content, and then can dynamically select the best cache or

Web server, either locally or remotely, ending frustrating error messages such as "Server not Found," improving Web site capacity and customer loyalty.

#### **E-Learning Services**

It can be difficult and costly to share knowledge, culture and learning across remote locations. With Content Networking, live and on-demand rich content delivery enables high-quality online learning that is typically 10 times less expensive than traditional classroom training. Employees, partners, suppliers and customers are kept well-trained and informed in a high-impact, cost-efficient manner, no matter where they are located.

#### **Security Services**

Web site outages caused by malicious DoS attacks can be extremely costly. With Content Networking, customers can ensure high levels of security without compromising site performance or disrupting e-commerce purchases and other mission-critical transactions.



For more information, visit: http://www.cisco.com/go/Content\_WP to download your FREE white paper from Cisco on how Content Networking can improve the efficiency of your network while saving you money.

(continued from page C2)

want to be able to reliably capture online revenue and ensure split-second response times, since online customers are quick to think something's gone wrong and move on to a competitor's site.

According to Internet Research Group, the average response time of six to eight seconds is unacceptable for any kind of interactive session. Mission-critical applications in enterprises must provide sub-second response times to user requests. That sort of performance is unthinkable if that request must leave the enterprise and traverse the Internet.

Network response — from the click of the browser's mouse to the destination server and back again — must be lightning fast. Content needs to be in the right language and in a format appropriate to the user's Web access device — be it a laptop or PDA. In these ways, implementation of Content Networking technology can lead enterprises closer to the speedy, flexible, customized Web they need for their businesses to grow.

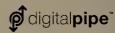
Developing e-business competence can prove difficult, given market pressures to perform, cut costs and increase profitability. Content Networking ensures that IP services integrate easily with applications and content, and that service providers and businesses get the security, scalability and throughput they need. That way, users get the content they want, when they want it — the essence of any delivery vehicle, especially in an era of content services.

Put a service provider with a Cisco Powered Network to work for you today.

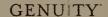


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tiple Access network to second-

and third-generation wireless

technologies based on General

AT&T: www.att.com; Siebel:

Managed infrastructure

provider Digital Island, which lost almost \$1.2 billion in its second quarter, is laying off 203 of

While the slowing economy resulted in fewer new customers during the second quarter, Digital Island CEO Ruann

Ernst says the company in-

creased market share with

enterprise customers in the

areas of content delivery and

also announced that CFO Tom

other interests.

PSINet's coffin.

ragged company.

out of cash.

managed hosting. Digital Island

Thompson left April 30 to pursue

It could be the final nail in

Schrader as its CEO last week,

tive Harry Hobbs to clean up

what's left of the financially

The company ousted William

bringing in former PSINet execu-

The ISP says it is attempting to

restructure, but most believe that

is a near-impossible task, consid-

Nasdaq halted trading of the

company's stock in early April

ering PSINet will likely soon run

Packet Radio Service.

www.siebel.com

its 850 employees.

Under the terms of the agree-

## Carriers & 15PS

The Internet, Extranets, Interexchange and Local Carriers, Wireless, Regulatory Affairs

### **Genuity betting on better SLAs**

BY DENISE PAPPALARDO

enuity is upping the servicelevel agreement ante in a highstakes guarantee game that experts say is as much about market bragging rights as customer dollars and cents.

The ISP announced recently that new and existing dedicated Internet

access customers are covered by enhanced SLAs.

Genuity now guarantees that traffic traveling between its points of presence (POP) will not exceed 55 msec of roundtrip latency. Previously, the company guaranteed that round-trip latency would not exceed 65 msec.

The improved SLA also guarantees that

users will not sustain more than 0.5% packet loss. The ISP's previous SLA assured no more than 1% packet loss.

Both guarantees are based on monthly

Genuity is now offering the strongest packet-loss guarantee in the market. AT&T was first to offer a packetloss guarantee below 1%, with an SLA

> that states users will not sustain more than 0.7% packet loss.

> Genuity now stands only with Cable & Wireless, which was the first ISP to offer a minimum round-trip latency guarantee at 55 msec.

> But analysts note these changes are not noticeable to the average customer.

"SLAs are really checkoff items for users today. What's more important is for users to find out what See **Genuity**, page 44

**SLA** battles continue

Here's how the major ISPs stack up on their performance guarantees:

ISP	Latency	Packet loss	Network availability	Proactive credits
Genuity	55 msec	.5%	99.97%	No
AT&T	60 msec	.7%	99.99%	No
Cable & Wireless	55 msec	1%	100%	No
UUNET	65 msec	1%	100%	Yes*

<sup>\*</sup>Customers must notify UUNET within five days to receive a credit. Customers are automatically credited if UUNET does not meet its other two guarantees.

### Verio, Exodus beef up respective security services

Riptech uses a

BY JENNIFER MEARS

ENGLEWOOD, COLO. - Web hosting companies Verio and Exodus have rolled out new managed security services in an effort to quell the fears of businesses reluctant to outsource because of possible network breaches.

Exodus is adding managed extranet and other services to its core security offerings, while Verio is making its first foray into "serious" security products, observers say.

Verio, which primarily offered shared hosting, has turned its focus to larger enterprise customers since its merger with Tokyo-based NTT Communications late last year, and managed security is one of a range of advanced services companies can expect from Verio, a spokeswoman says.

Verio is partnering with Riptech to offer its Intellisecurity service, which includes real-time, live analysis of suspicious activity and security threats. The security service is available for collocation, VPNs, dedicated access and dedicated servers, and includes managed firewalls, VPN service and intrusion detection.

combination of filtering software and security staff to provide roundthe-clock monitoring and analysis of VPNs, firewalls and intrusion-detection systems from its security operations center. Verio customers will have access to analysis, troubleticket status and real-time commu-

nication with security analysts through a Web interface, as well as through a toll- tools of varied sophistication and VPN free number and e-mail, says Sherry Quinn, Verio's product manager for managed security services. Customers are notified of a threat by phone or e-mail within 15 minutes of a confirmation.

"What we wanted to present to customers is a vigilant protection of their network using real-time live intelligence," she says.

Security blanket

A survey by Computer Security Institute and the FBI illustrates why hosting companies are stepping up security services. Based on responses from 538 administrators, the survey found that in general:

85% had detected security breaches within the past 12 months. Of those,

64% acknowledged financial losses.

40% detected system penetration from the outside, compared to 25% in 2000.

38% detected denial-of-service attacks, up from 27% last year.

And specifically, in the area of e-commerce:

23% experienced unauthorized access or misuse within the past 12 months.

90% reported vandalism, compared to 64% in 2000.

78% reported denial of service, compared to 60% in 2000.

13% reported theft of transaction information, compared to 8% in 2000.

Intellisecurity includes seven firewall capabilities built on software from Check Point, Nokia and NetScreen. Verio's intrusion-detection service also uses Enterasys Dragon equipment to monitor for unusual and suspicious traffic.

Quinn says customers contract for the Intellisecurity service through Verio and receive a single service-level agreement See Security, page 44

after it plummeted to 19 cents per share. The stock was eventually delisted.

Network World May 7, 2001 www.nwfusion.com 39

### EarthLink rolls out expanded broadband services

BY DENISE PAPPALARDO

ATLANTA - EarthLink announced last week that it is teaming with DirecPC to offer users across the U.S. high-speed Internet access service.

The ISP launched EarthLink Satellite Powered by DirecPC service in a number of cities on the East Coast. EarthLink expects to offer the satellite service nationwide by the end of the month.

The service supports 400K bit/sec downstream and 144K bit/sec upstream Internet access. Customers use a 2-by-3 foot dish to connect to the Internet (see graphic). The two-way dish lets users download and upload Internet traffic while working from home or a remote office.

As the service first rolls out, customers are issued a single IP address. That means a small office that signs up for the service would have to connect one PC to the receiver, which would then act as a server. Other users can connect to the server via a LAN in a smalloffice environment.

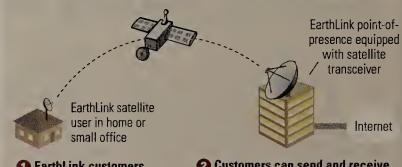
EarthLink plans to introduce a multiple-IP-address version of the service that will let many users more easily connect to the service. The ISP is also evaluating fixed wireless Internet access offerings that it would gear toward business users.

Also, Sprint is connecting its fixed wireless multipoint, multichannel distribution service customers to the Internet using EarthLink's network. But the ISP did not say if it expects to expand that relationship to build on its broadband user base and service offerings.

"EarthLink has 288,000 broadband customers," according to Tom Andrus, vice president of emerging technology at the ISP.

### Satellite Internet

EarthLink has teamed with DirecPC to offer EarthLink small-office users a high-speed connection to the Internet at up to 400K bit/sec.



EarthLink customers need a small transceiver dish mounted outside their home or office.

Customers can send and receive traffic between EarthLink's network and the Internet. Traffic travels through DirecPC's satellites.

The majority of those customers are using EarthLink's DSL Internet access service. EarthLink partners with incumbent local exchange carriers and Covad Communications to locally provision DSL Internet access service customers.

EarthLink is in the midst of a handful of open access cable Internet trials with service providers such as Comcast and Time Warner Cable. It's also offering service over Charter

Communications' cable network, Andrus says. But these broadband services don't reach all customers.

Unlike DSL or cable modem service, the satellite service is available anywhere in the U.S. that offers an unobstructed view of the southern sky. This makes the service more attractive to users who do not have access to land line broadband services.

EarthLink Satellite service costs \$70 per month in addition to a one-time installation cost of \$900. The fee includes \$650 for the dish and \$250 to have the system installed.

EarthLink's business DSL service is available in about 50 markets, the company says. It includes eight IP addresses, with the option for more, and includes a router. The offer ranges from \$140 to \$400 per month for 144K bit/sec to 1.5M bit/sec DSL connectivity.

While the ISP has focused exclusively on residential customers and companies with fewer than 100 employees, it says it will offer services for large businesses before the end of September.

EarthLink will introduce a VPN service that will be an extension of a company's existing secure network service, Andrus says.

The vendor will work with corporate customers to define the security and access parameters they want to support. Earth-Link's VPN service will differ from other ISP offerings because it will not lock users into specific hardware or software. EarthLink plans to support the service with standards-based security devices that will interoperate with any VPN gateway or router that may be deployed at a company's headquarters.

The VPN offering will also tie in with the EarthLink Everywhere service, the ISP's wireless Internet access initiative announced earlier this year (www. nwfusion.com, Doc-Finder: 4136). Users can access their corporate network using a Rim BlackBerry handheld device or Ricochet wireless modem attached to their PCs.

George A. Chidi with the IDG News Service contributed to this story.

### Technologies to work in tandem to aid IP telephony

BY CAROLYN DUFFY MARSAN

Enum, an emerging technology that integrates the public switched telephone network and the Internet's domain name system, is getting a boost from another new Internet capability called SIP, for the Session Initiation Protocol. The Internet Engineering Task Force developed both communications protocols, which are being adopted hand-in-hand by vendors of IP telephony gear.

The newer of the two technologies, Enum lets users type a telephone number into a Web browser and find a corresponding URL, e-mail address or IP address. The IETF finalized the Enum specification six months ago, and most of the companies that are adopting Enum already support SIP.

SIP is a signaling protocol used to establish Internet telephone calls, multimedia conferences, chat sessions and other interactive communications. Completed more than two years ago, SIP is shipping in a slew of products including IP telephones, call management servers and carrier-class software.

Among the SIP vendors that have announced Enum support are Indigo Software, Pingtel and 3Com. These companies plan to use Enum to help initiate IP telephone calls by looking up the Internet resources available for a particular phone number. Enum can provide a single point of contact for a person's communications devices, including PCs, fax machines, handheld computers and cell phones.

Once the recipient's URL is found, SIP can handle the communications between the two parties over the Internet. Enum and SIP also can work together in unified messaging and instant messaging applications.

"Equipment suppliers and carriers are very, very positive about the use of Enum with SIP," says Richard Shockey, co-chairman of the IETF's Enum working group and an executive with NeuStar, which recently announced a test bed for companies developing Enum-enabled products. "Internet-enabled fax machines and SIP phones are how people will begin to deploy Enum."

"Most of the SIP vendors and

SIP service providers are seriously looking at Enum," agrees Prabahla Laks, software development manager for Enum projects at VeriSign, which has attracted 400 companies to its 5-month-old Enum test bed. "Starting in 2002, we expect to see globally accepted Enum applications."

One Internet-based carrier that's interested in rolling out Enum and SIP together is Level 3 Communications. "There's a tremendous amount of interest in Enum, and that's going to continue to accelerate as SIP becomes more popular," says Jon Peterson, senior architect for Level 3. "You need to translate between SIP phones and PSTN endpoints, and Enum

Peterson says Enum complements SIP by providing look-up features that will come in handy for such functions as 800 number translations and local number portability. For SIP carriers, Enum eliminates the need to support a special routing infrastructure that translates between IP addresses and telephone numbers.

"As Enum becomes a more

prevalent technology, it's going to be integrated into the SIP proxies deployed on our network," he says. "We're going to require [Enum support] of our vendors in the 2001 timeframe."

Enum and SIP also will be deployed together by firms interested in combining voice and data traffic over Internetbased VPNs, industry experts

"By the end of the year, Enum will be available in some of the SIP deployments," Peterson says. "I assume it's going to ramp up exponentially as soon as it becomes available across the [North American telephone numbering plan]."

Indeed, companies buying IP telephony systems may not even know they are using Enum and SIP together.

"Enterprises are interested in converged telephony solutions," says Dave Fraley, a principal analyst with Gartner. "Are they going to put in an Enum server? No. But would they buy an IP PBX that has Enum support? Yes. They're going to have to have Enum if they want to convert telephone numbers or extensions into IP addresses."

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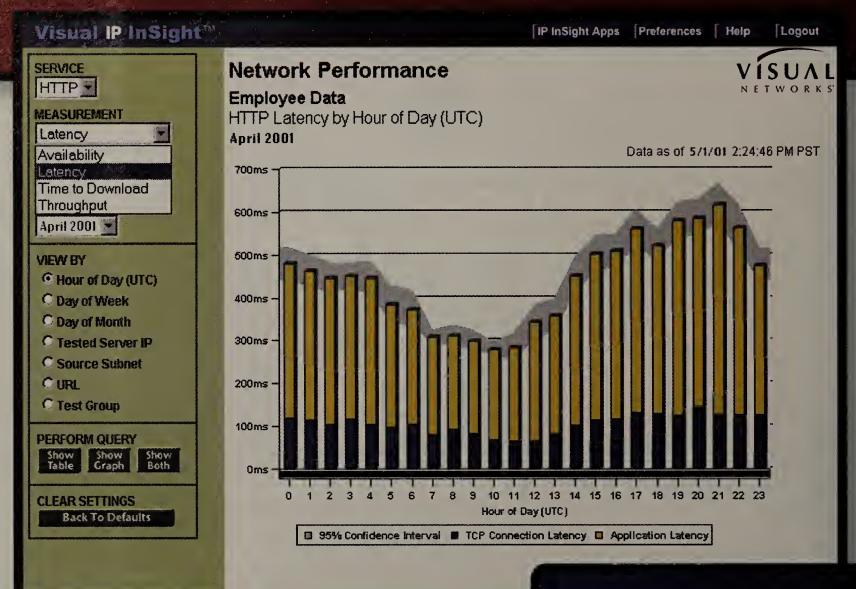
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### Metro Ethernet providers to offer VolP

BY MICHAEL MARTIN

WILMINGTON, N.C. — Customers of metropolitan Ethernet providers Telseon and Cogent could soon be getting voice services in addition to big bandwidth, thanks to separate deals the companies cut with telephony application service provider TalkingNets last month.

The deals will let Telseon and Cogent offer TalkingNets' softswitch-based voice services to their service provider customers and potentially to their direct small and midsize business customers.

### Voice-enabling data networks TalkingNets' VolP network will offer customers features such as:

- Centrex services
- Autoattendant
- Web-based management

TalkingNets currently offers voiceover-IP services through service provider partners in Denver and is expanding to 25 cities across the U.S. by the second half of next year, says Mark Costner, vice president of marketing.

In any market it serves, TalkingNets would have a softswitch, a feature server, which provides telephony features, and a media gateway, which connects the TalkingNets network to the public switched telephone network. TalkingNets uses service provider Level 3 to interconnect its network.

Telseon and Cogent can offer voiceover-IP services in markets where the metropolitan Ethernet providers and TalkingNets have a presence. Costner says the companies overlap in many markets, including Denver.

There are two advantages customers can get through TalkingNets' voice-over-IP services, Costner says. The first is price. For basic dial tone service, Costner says customers will see a 15% to 25% savings over what they're paying their incumbent local exchange carriers.

The second benefit is features. Through its feature servers, TalkingNets can offer customers higher-end services, such as Centrex and autoattendant, normally associated with larger companies.

Customers have two options for handsets. They can continue to use standard analog phones and plug them into a voice-over-IP gateway, or move to IP phones, which can be connected directly to a company's LAN.

Counse Broders, an analyst with research firm Current Analysis, says on the high end, WorldCom and AT&T are letting enterprise customers transport voice-over-IP calls across private backbones. On the lower end, Broders believes TalkingNets is offering smaller customers interesting options. "They really seem to have gotten things right in terms of pushing feature functionality instead of price savings," he says.

Smaller businesses can get PBX-type

functions by using TalkingNets, Broders notes. For instance, if an end user was in a meeting but expecting an important call, through a Web browser the user could set the phone to forward all calls except the one the user was waiting for to voice mail.

TalkingNets: www.talkingnets.com



### Carriers & ISPs

Genuity, continued from page 39

the average latency is between POPs," says Jason Knowles, an analyst at consulting firm Current Analysis. Genuity's average latency between POPs is about 40 msec, he says.

AT&T claims the average latency over its network is 35 msec, which is also lower than its guarantee.

Although a 5-msec difference is indiscernible to users, there is a difference between a 55 msec and a 70 msec maximum allowable latency guarantee, such as that offered by Sprint, Knowles says.

Even though SLAs are in a sense a marketing tool, stronger guarantees give users a "good feeling," he says. It says the ISP is confident in its network performance.

Genuity's SLA for network availability remains unchanged, guaranteeing 99.97% network availability. That guarantee includes the customer's local-loop connection if ordered through Genuity. UUNET and AT&T also include their customer's local-loop connections in their network availability guarantee if ordered through the service provider.

#### Monitoring tools missing

Genuity customers are still missing performance monitoring tools. If they want to know monthly latency and packet-loss statistics on Genuity's network, they must request that information from the ISP. If Genuity missed any of its SLAs, the user has to contact the ISP and request the credit due.

"Tools that will let customers monitor performance will soon be on our public Web site," says Bill Cohn, group product manager at Genuity. The tools are expected to be available by the end of next month.

According to Knowles, no ISP is clearly leading the market in providing intuitive network performance monitoring tools. UUNET, Cable & Wireless and Sprint are offering some such tools, but they lack real-time capabilities.

Without a site that lets users easily check to see if their ISP is living up to its

guarantees, ISPs should offer customers automatic credits, experts say.

UUNET is the only ISP that is offering such automatic credits.

However, Genuity is offering the best availability credits. If the service provider's network is not available for 10 to 60 minutes during a single outage, users are entitled to a one-day service credit. If the outage is more than 60 minutes, customers are entitled to a three-day service credit.

Most other ISPs only credit customers one day of service regardless of how long their networks may be unavailable. Genuity customers will not be credited more than 15 days worth of service.



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Security, continued from page 39

and bill. Riptech engineers configure the security policy, and install and monitor the security package.

Like Verio, Exodus uses Nokia and Check Point software in its VPN and firewall security services, which it is expanding with gateway-to-gateway coverage.

Exodus has also partnered with Eventual to offer managed extranet services, which give companies, their customers and their partners secure access to applications via the Web, says Eric Kirsten, Exodus' director of product marketing for security.

Exodus also announced an enhancement to its Cyber Attack Management Service (CAMS), which provides intrusion detection and assistance from security engineers round-the-clock.

In addition to analyzing suspicious traffic and threats, CAMS will now use cryptographic methods to monitor directories and files on host computers to ensure they are not changed. If a change is detected, an incident response team of security professionals will not only review the breach and how it occurred, but also collect evidence that can be used for prosecution.

Lydia Leong, an analyst with Gartner.

says Exodus can offer a strong security service because of its years of experience and acquisition of security companies such as Arca.

"Exodus is several generations into their product offering," she says. "This is sort of generation 1.1 of the offering for Verio."

Verio probably partnered with Riptech, she says, so Verio customers could receive advanced services from an experienced security organization. Most host companies staff security services inhouse, she adds.

Bob Fetterman, CEO of iDashes, a Web-based management company, says after looking after several other hosting companies, including Digex, he chose Verio because it didn't manage its security service itself.

"You have almost a check and balance on the security process," Fetterman says.

"We have a firewall that is sitting in Verio's facility, but it's all monitored by Riptech. So we feel comfortable that there's a little bit of a check and balance between the hosting and the security analysis," he adds.

The companies say the cost of the security services varies depending on customer needs.

Verio: www.verio.com; Exodus: www. exodus.com



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### Carriers & ISPs



Eye on the carriers . Johna Till Johnson

### THE HIDDEN HEADACHES OF IPV6 SERVICES

omentum for IPv6 services has been steadily gathering. However, whether this is good or bad news depends on your perspective.

And speaking of perspective, there are two things you should know about mine: First, I'm a charter member of the IPv6-haters mailing list. Second, my

company builds networks for service providers — and we've been more than happy to work on IPv6 projects.

I'm no IPv6 fan, but I will take money

to build an IPv6 network.

IPv6 deployment is more challenging than anyone, including its boosters, ever envisioned, and deployment challenges for service providers will translate to service problems for users.

Most of the service providers I've worked with are doing IPv6 not because they particularly want to, but because they have to. Their networks, or parts of them, are mobile, and handset vendors, such as Ericsson and Nokia, are hard-coding IPv6 support in their devices. Refusing to support IPv6 isn't an option for these service providers.

Yet, service providers are just beginning to discover the difficulty of transitioning a network to IPv6. Check out the Internet Engineering Task Force draft written by engineers at Deutsche Telekom, British Telecom, Telenor and others, located at http://search.ietf.org/internet-drafts/draft-krampell-v6transition-interaction-00.txt

My favorite quote in the draft is: "The current variety of transition mechanisms and [their] potential problems can hinder the deployment of these mechanisms in a large scale." That's engineer-speak for "Dude, this stuff is hard!"

The details of the problems are beyond the scope of this discussion, but they boil down to the multiplicity of options that exist for tunneling and gatewaying between IPv4 and IPv6.

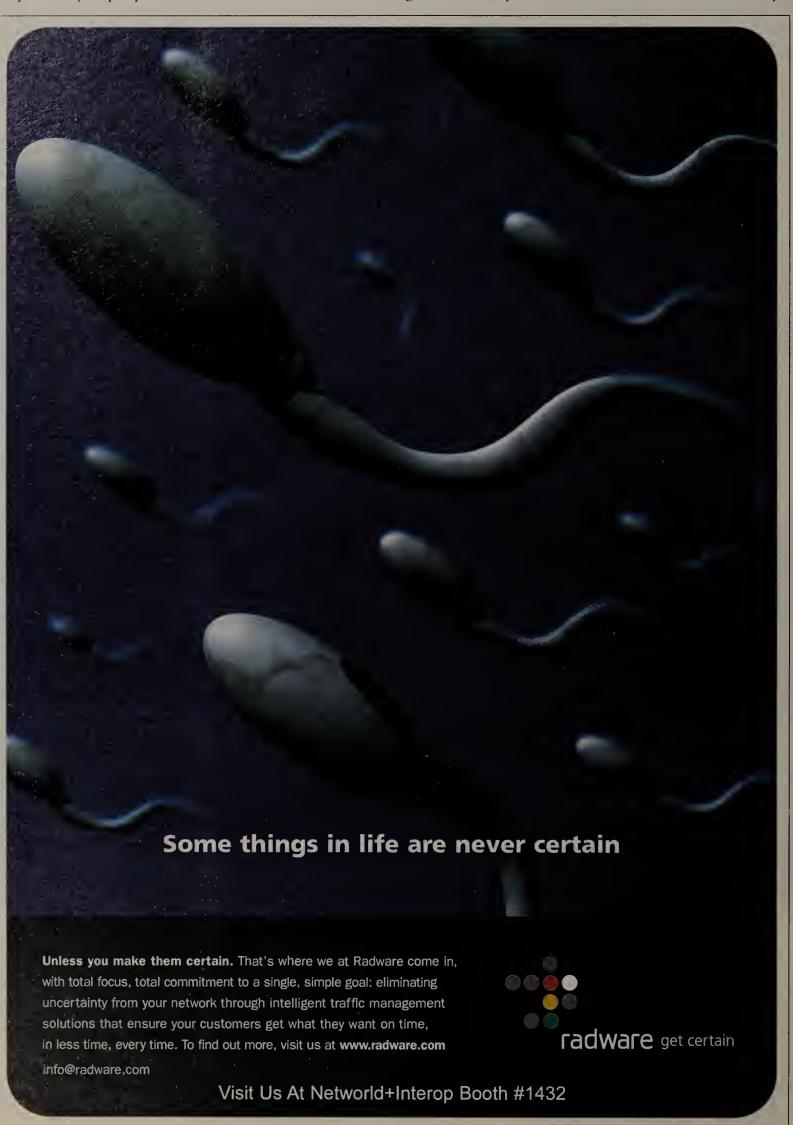
That brings us to the issue of user impact. Anything that causes headaches for service providers potentially causes problems for users. Your local telephone company will swear on a stack of Bibles that nothing will disrupt service to you, the valued customer.... Believe that?

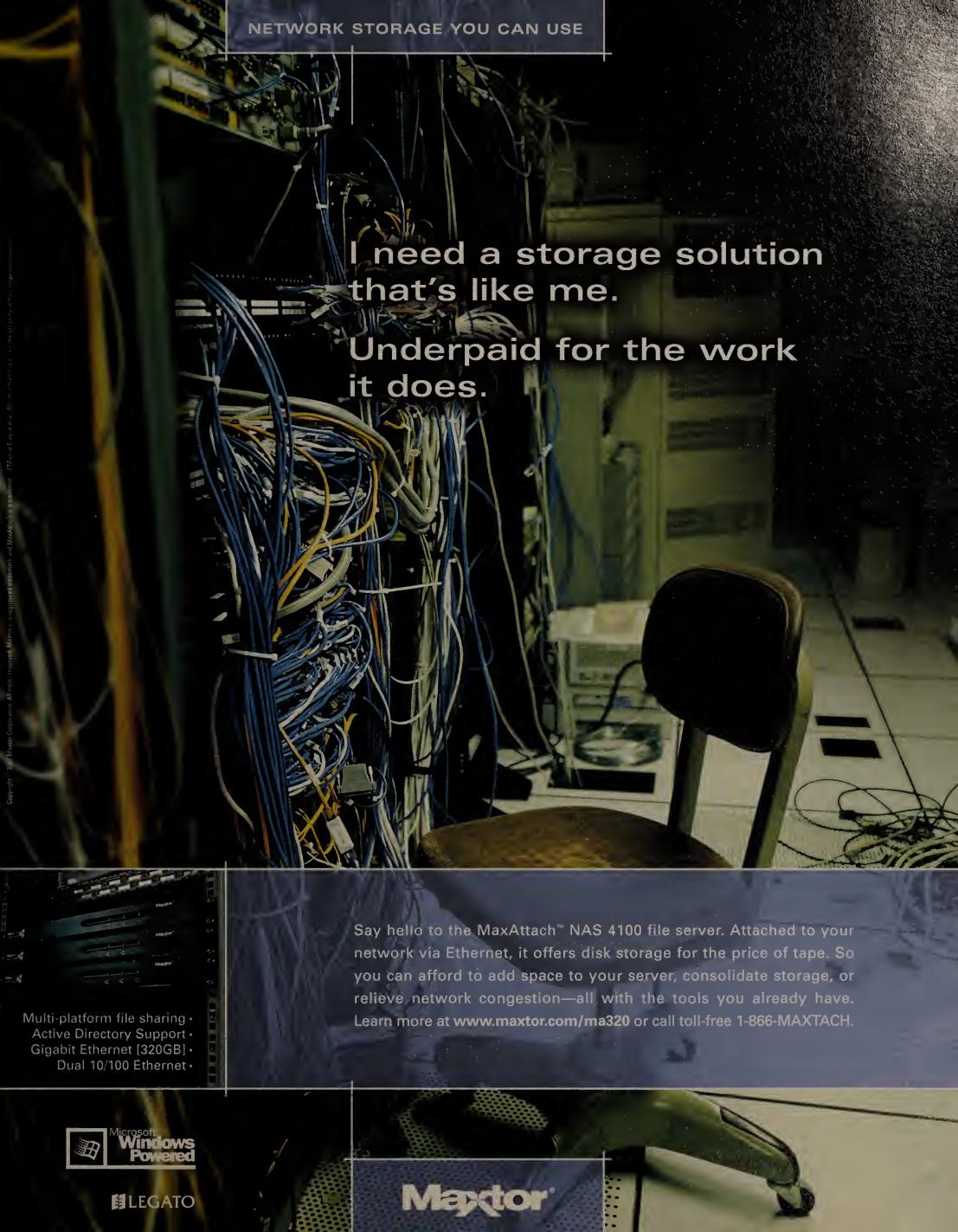
The problems are in three categories:

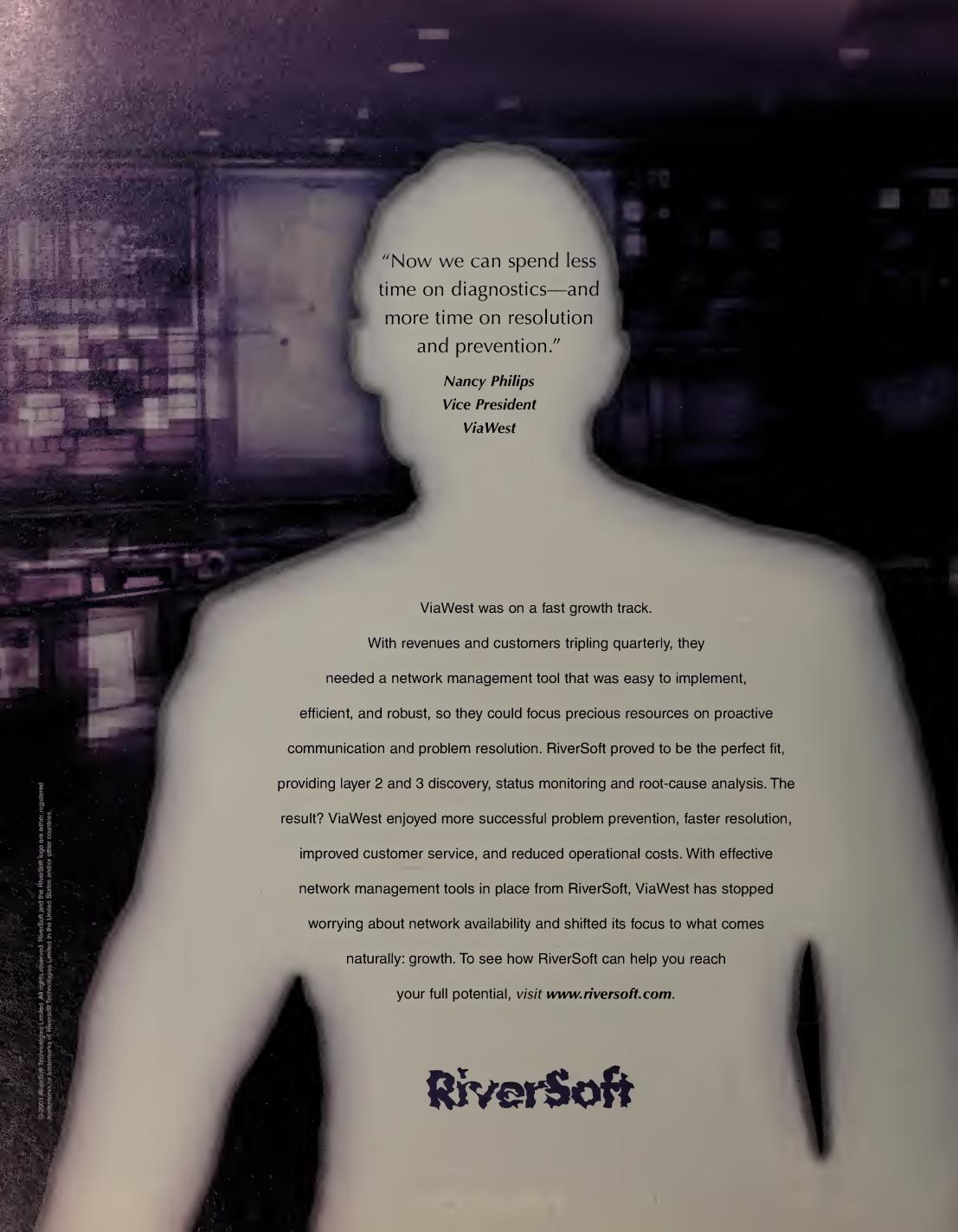
- Service disruption Making any modification to an operational network is always challenging. Transitioning from IPv4 to IPv6 is like rebuilding a car engine while the car is going 100 mph.
- Performance degradation Any time you add gateway, translation and brokering services, you potentially increase network latency and slow the performance of customer applications.
- Longer provisioning times Coming up to speed on IPv6 will reduce the time engineers can spend doing routine operations and architecture. This will elongate service deployment time-frames for IPv6 and IPv4 services.

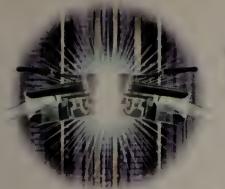
What's a user to do? Negotiate effective service contracts with well-defined terms, and stringent penalty clauses. That won't fix the underlying complexities, but it will help ensure that your issues get bumped to the top of the carrier's priority list.

Johnson is senior vice president and CTO for Greenwich Technology Partners, a network consulting and engineering firm. Her column appears biweekly beginning with this issue. She can be reached at johna@greenwich tech.com.









Service provider developments at the juncture between the enterprise

Aura Networks last week announced that Cogent Communications will use Aura Networks' Radiance Optical Ethernet System to deploy managed fiber connections to its facilitiesbased customers in office buildings across the U.S.

Cogent has ordered approximately \$1 million of Radiance metro-access equipment to be delivered during the next 18 months for use with its Internet access connections to businesses and multitenant facilities.

Cogent has purchased Aura Networks' R5000 Central Service Platform with dual DC power and 1G bit/sec interface to deploy through the risers in Cogent-serviced buildings.

Aura: www.auranetinc.com

**Terawave Communications** announced customer trials and its first customer order for Tera-PON, the company's optical access product.

C2C Fiber, Shaw Communications, T-Nova Deutsche Telecom and Singapore Telecom have agreed to test the product. In addition, FiberLab, a systems integrator based in Taipei, has ordered the technology for deployment by service providers in Taiwan.

The TeraPON product line employs broadband optical networking. The company claims that widespread PON deployments would bring "the ultrafast broadband capabilities" of fiber to small and midsized businesses and households.

TeraPON is designed to transport two-way traffic symmetrically at 622M bit/sec on a single strand of fiber.

The product line includes the TW-600 Optical Line Terminal and the configurable YW-300 Optical Network Terminal.

Terawave: www.terawave. com

### Cisco unveils metro optical system

BY JIM DUFFY

isco last week broadened its metropolitan optical portfolio with a new dense wavelength division multiplexing platform designed for high-speed integrated transport of storage and data network applications.

The ONS 15540 Extended Services Platform is designed for enterprise and service provider networks. Companies demand high-capacity storage networking and costeffective extension of Gigabit Ethernet traffic into the metropolitan area, Cisco says. Service providers require rapid provisioning of new services over wavelengths for greater revenue per optical fiber, and service-level agreement guarantees on those services.

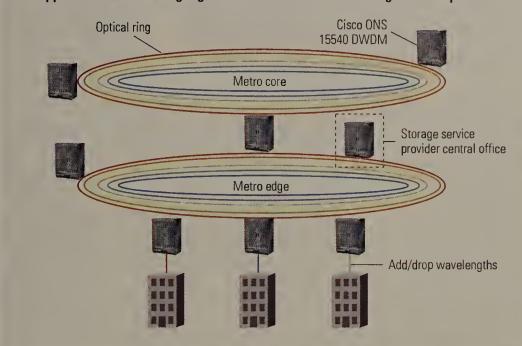
Those demands from two markets are helping fuel growth in the metropolitan optical storage and data transport arena. The market is expected to grow to \$3.6 billion by 2004 from less than \$500 million this year, according to RHK.

However, with service provider and enterprise IT spending down, that number seems almost unreachable. And as Cisco prepares to lay off 8,500 employees due to a lack of customer spending, unveiling a new product might seem irrelevant.

But life goes on, analysts say.

#### Metro maneuvers

Cisco's new ONS 15540 DWDM will find a home in the metro core and edge, and an application in delivering high-bandwidth services for storage service providers.



"It's a tough time to launch a new product, but anyone who wants to stay in business needs to launch new products and continue to grow the product line," says Anna Reidy, senior analyst at RHK.

Cisco's ONS 15540 will go up against

Nortel Network's OPTera Metro 5200 and ONI Systems' Online 7000 and 9000 platforms. The ONS 15540 is a 12-slot Network Equipment Building Standards-3 compliant, rack-mountable chassis. The initial See Cisco, page 50

### Service creation switches speed IP services

BY TIM GREENE

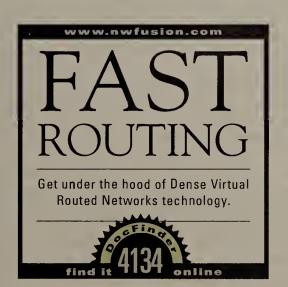
Start-ups are vying with big network vendors to offer comprehensive service creation platforms, a new class of edge switch/router that supports networkbased, broadband IP services including firewalling and VPNs.

Taking a step beyond the initial offerings in this area that essentially aggregated broadband traffic at the edge of service provider networks, the latest products add quality-of-service (QoS) capabilities and applications such as content filtering.

As enterprise execs are comfortable today buying a frame relay or ATM service from a service provider, they will someday be comfortable buying IP-based services such as VPNs built with these new service creation platforms, says Ron Westfall, a senior analyst with Current Analysis.

"[VPN] tunneling is already outsourced to companies like Genuity, and these services allow a tighter coupling of subscriber management with content management," he says.

These platforms offer the promise of users being able to add and drop services themselves, reducing the time it takes to



fill orders and make changes, he says.

Leaders in this field include Lucent and Nortel Networks as well as a host of startups such as Celox, Cosine, Net.com, Quarry and Unisphere. Service providers, including AT&T Wireless for residential wireless access, and Qwest Communications are using it to support VPN services.

These devices provide subscriber management in the form of user profiles and track use of the services for billing. They typically take in customer traffic over a variety of interfaces, including Ethernet, time-division multiplexing, SONET, ATM and frame relay. They also support Multiprotocol Label Switching for traffic shaping as well as software interfaces to separate operational support systems and billing systems.

Already these hardware vendors are scaling down the size of their equipment for installation in smaller carrier points See Start-ups, page 50

### Astral Point adds voice grooming to MAN switch

BY TERRI GIMPELSON

CHELMSFORD, MASS. — Astral Point last week unveiled an enhancement to its ON 5000 Optical Services Node that adds voice grooming to the metropolitan-area network switch.

The firm's STS-1 Transmultiplexer lets the ON 5000 groom voice traffic off DS-1s and hand it off to a Class 5 central office switch. It works with an existing DS-3/1/0 switching and groom-

Start-ups, continued from page 49

of presence and letting service providers buy into the technology with a smaller outlay (www.nwfusion.com, Doc-Finder: 4140).

The renamed and refocused Net.com is introducing two new members of its Service Creation Manager (SCREAM) family, the SCREAM50 and SCREAM100. With a 40G bit/ sec backplane, SCREAM100 supports 250,000 simultaneous users sessions. This is less than the touted capacity of upstart competitor Celox, which promises to support six million users on an 80G bit/sec backplane.

Net.com and Celox are expected to ship their gear later this year, while others, including Nortel, Lucent and Cosine, have their gear running in providers' networks.

All the vendors credit Redback Networks with being the pioneer in this area, but say their products can support many more connections than Redback's Subscriber Management System products.

"Redback has been left behind technologically," Westfall says. With last year's purchase of Siara Systems, Redback seems to be more focused on optical access, he says.

Even as carriers reduce their capital expenditures, the market for IP service creation platforms will grow beyond the \$200 million in revenue of last year. And firms should see more services based on these boxes, Westfall predicts.

"The bottom line is the expenditures will go up even during this slowdown. This technology is being sold into major accounts," he says.

ing module for the ON 5000 that can be distributed throughout the network to manage DS-3, DS-1 and DS-0 services.

The STS-1 module is a fourport card for the ON 5000 chassis. It aggregates multiple DS-1s, and converts them into Virtual Terminal 1.5 format that the Class 5 voice switch understands.

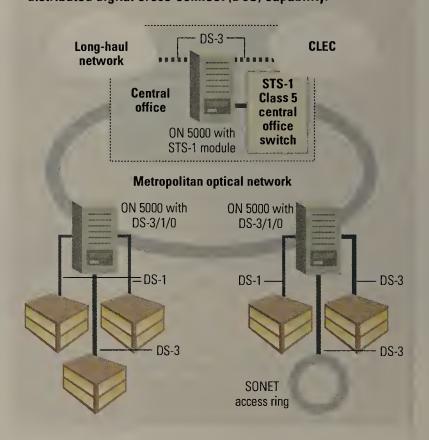
A single ON 5000 node can support up to 80 STS-1 or 120 DS-3/1/0 interfaces. Astral Point claims the module gives customers an alternative to the traditional centralized digital crossconnect systems (DCS) that require bandwidth-inefficient backhaul connections to a central office for grooming.

With the STS-1 module, the company says it can distribute switching and grooming capabilities locally, thereby eliminating backhaul problems and conserving bandwidth. The module also lets the ON 5000 be used within a central office to take in DS-0, DS-1 and DS-3 circuits, switch and groom them for handoffs for various service providers, or transport across a long-haul network.

The firm also claims the STS-1 module allows a more reliable means of testing than centralized DCS, which doesn't provide accurate test data through

**Groom and conquer** 

With the new STS-1 module, Astral Point's ON 5000 optical switches can switch and groom voice traffic from businesses and existing SONET networks, and locally groom circuits through distributed digital cross-connect (DCS) capability.



the edge of a network. The STS-1 module costs \$13,000 and is shipping now.

Analyst Grier Hansen of Current Analysis says the STS-1 module works well with legacy architectures and easily separates traffic into STS-1 standardized increments. He also says the module should interoperate with other vendors' systems, but will face competition from Cisco and Redback Networks.

Tom Nolle, president of CIMI

Corp. and a columnist for Network World, says the module's ability to support legacy voice traffic in addition to bursty LAN data is key to its market appeal — and to Astral Point's fitness.

"One thing is for sure, if you look at the current market conditions, most emerging carriers are not getting any more money," he says. "They are the ones who are going to sink in the market. It's the same with equipment vendors. Those who only support futuristic traffic are going to go out of business."

Nolle's words may be prescient. The release of the STS-1 module comes as Astral Point lays off 45 people, about 20% of its staff, as a means of saving its venture funding. It has also shelved its ON 2000 product line due to lack of demand.

Released in December 2000, the ON 2000 is an access aggregation box designed for use in telecom hotels, multitenant buildings, collocation facilities and customer facilities.

Contrary to previous reports, the company says it is not scrapping the ON 2000 line altogether, but says it is simply deferring the line's development. Astral Point is prepared to resume development if the need arises, a company spokesman says.

continued from page 49

release supports up to 32 protected wavelengths per fiber pair, operating at speeds from 16M bit/sec to 2.5G bit/sec. Spacing between wavelengths is an International Telecommunications Union-compliant 100 GHz, letting all 32 wavelengths reside in the C-band of an optical fiber, Cisco says.

The ONS 15540 supports a variety of network and storage protocols, including Gigabit Ethernet, Enterprise Systems Connection, FICON, Fibre Channel and SONET, all initially running in transparent mode. Later releases will be able to support these services in switched mode, in which a wavelength can be packed with as much traffic of the same type as possible.

The system can be configured to operate in point-to-

point, hub-ring and mesh-ring networks. Optical add/drop multiplexing modules are optional for users looking to add or drop multiples of four, eight or 16 lambdas at a time.

For protection, the ONS 15540 features three options that give the system greater than 99.999% availability, Cisco claims. For management, the system offers another dedicated lambda, called the Optical Supervisory Channel, which provides performance monitoring and troubleshooting for each fiber. In a later release, the ONS 15540 will provide perlambda management end-toend, Cisco says.

The ONS 15540 can also be managed from CiscoView, a Web-based version of Cisco's graphical device management application. Service providers will be able to manage the system from the Cisco Transport Manager application, which

manages the rest of Cisco's ONS optical portfolio.

The ONS 15540 adds highdensity storage and data network integration to Cisco's ONS metropolitan optical network line.

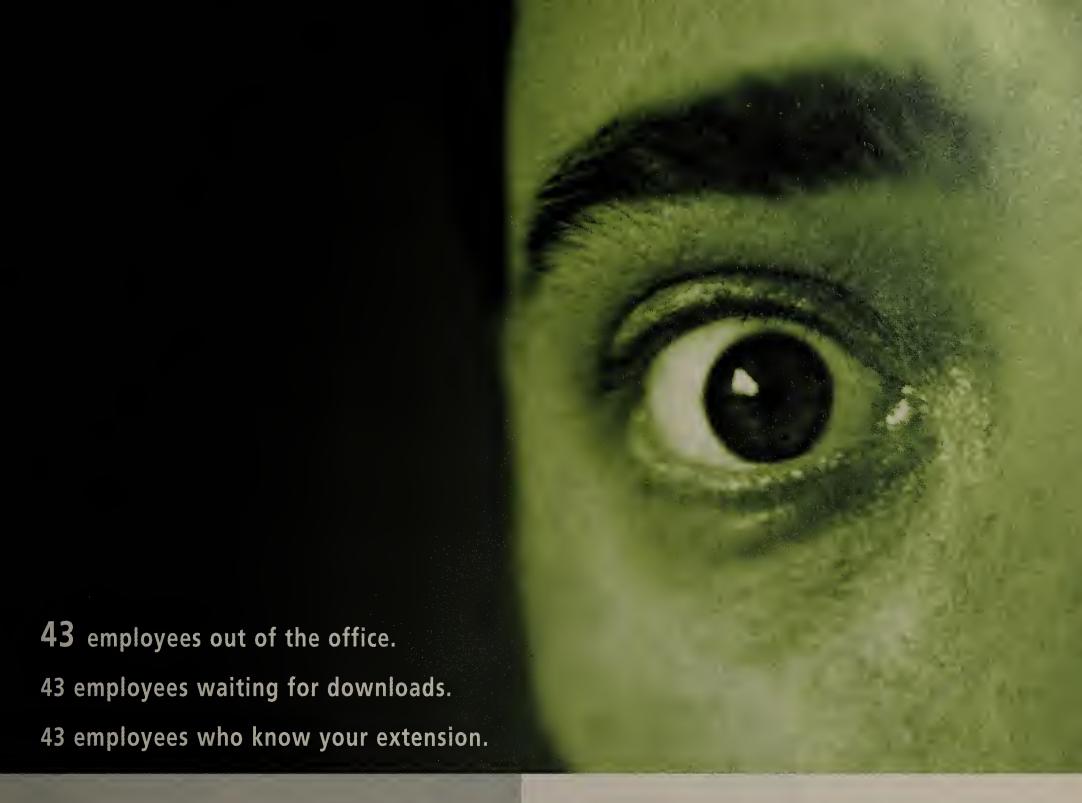
Cisco is also working on a line of new optical platforms for provisioning 10/100 Ethernet services and configuring Resilient Packet Ring (RPR) architectures, says Carl Engineer, a Cisco marketing director. The RPR products, which would support the emerging IEEE 802.17 standard for optimizing metropolitan optical bandwidth for IP and Ethernet, could emerge this year, Engineer says.

Meanwhile, the ONS 15540 is being certified to interoperate with high-availability storage systems from EMC and IBM. Cisco is also working with AT&T Solutions to qualify the ONS 15540 for deployment in the services firm's Ultravailable Solutions offering for storagearea and broadband networks. Cisco also is working with Metromedia Fiber Network to qualify the ONS 15540 for deployment in MFN networks.

Additionally, Cisco is certifying the ONS 15540 for interoperability with 10G bit/seccapable versions of its 12000 GSR and 7600 OSR routers, and Catalyst 6500 switches.

The ONS 15540 is expected to be available in June. The list price of a base system starts at \$67,000, excluding \$20,000 transponders and \$30,000 four-channel optical add/drop multiplexers.

Cisco is targeting November for a second release of the ONS 15540 that will support 10G bit/sec wavelengths, crossbar switching up to 640G bit/sec, and perhaps sublambda muxing of different services onto a single lambda.



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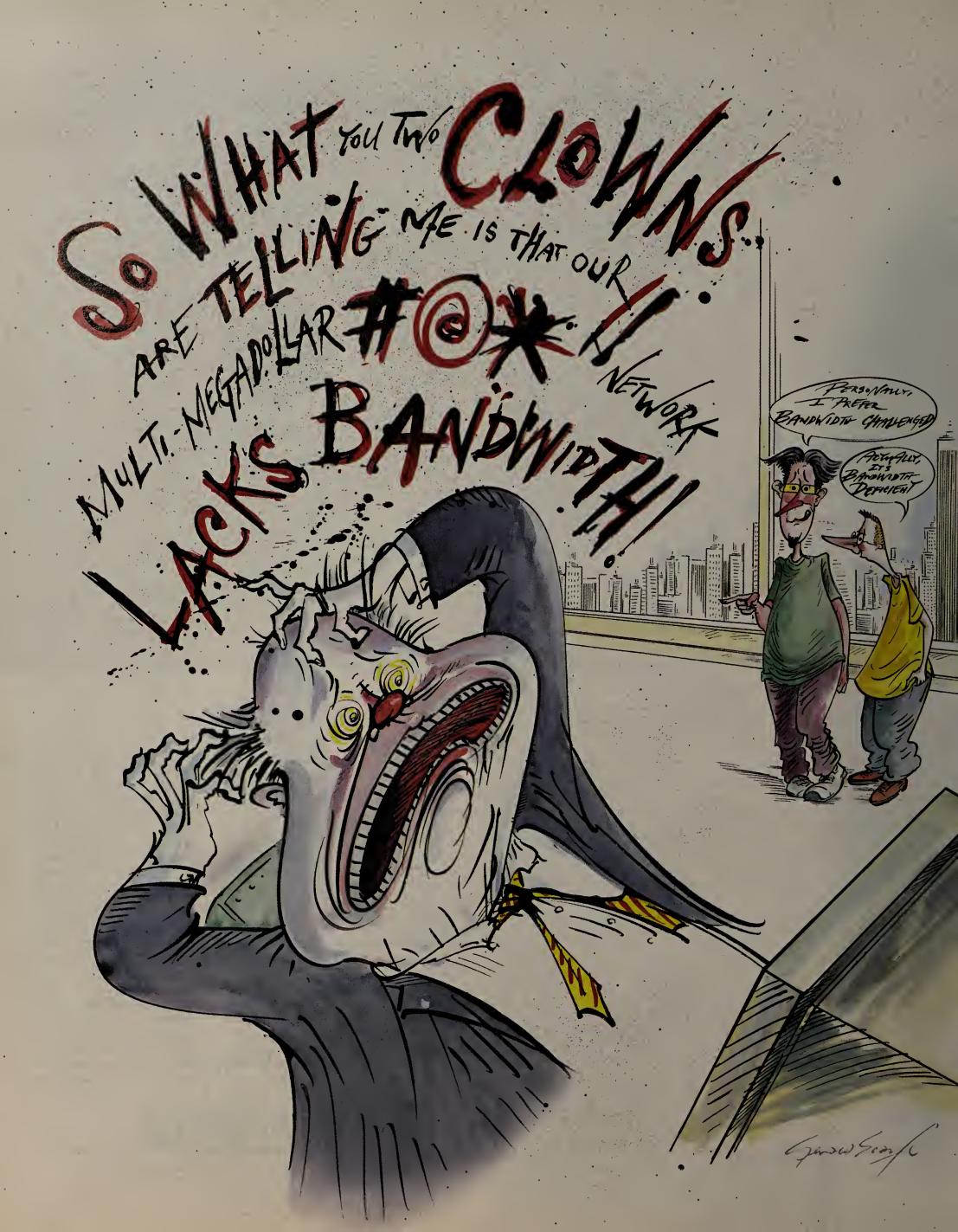
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Bandwidths	56Kbps to OC 48	56Kbps to OC 12	56Kbps to OC 12	56Kbps to OC 12
Cisco® Powered Network (Domestic)	Yes	No	Yes	No

broadband • internet • hosting • applications • consulting telecommunications • wireless



### LuxN announces CWDM access platform

BY TERRI GIMPELSON

SUNNYVALE, CALIF. — LuxN unveiled an addition to its line of optical Ethernet access platforms targeted at low-density networks, including campus interconnections, metropolitan access or smaller metropolitan rings.

The WideWav system uses coarse wavelength division multiplexing (CWDM) in an effort to provide a more cost-effective way for service

providers to deploy wave division multiplexing (WDM) technology. CWDM systems are designed for short-haul optics, in which wavelengths are spaced farther apart than in dense WDM (DWDM) systems.

By spacing wavelengths farther apart, CWDM systems can be built using cheaper, uncooled lasers, rather than the more expensive cooled lasers used in longer-haul DWDM systems.

Uncooled lasers are electronically tuned, while cooled lasers are temperature tuned. Electronic tuning is preferable over temperature tuning because temperature tuning is harder to achieve across a wider wavelength range — such as that in CWDM — due to temperature uniformity across all wavelengths. This adds to the cost of the WDM system, according to analyst Jay Patel of The Yankee Group.

WideWav is a module for LuxN's WavStation WDM system. Each Wide-Wav module supports a single fiber that can carry eight CWDM channels or four CWDM and 16 DWDM wavelengths via an option that lets users aggregate CWDM and International Telecommunications Union-compliant wavelengths.

However, WideWav and other CWDM systems work best at the edge of an ITU system or if the users stay within a particular network, like point-to-point, according to Agnes Imregh, LuxN's vice president of marketing.

"I would recommend that if you're expecting a fiber-dense population, in order to get a maximum return, it makes sense to start with a DWDM system right away," she says.

WideWav can be configured remotely, Imregh says. For instance, an OC-3/STM-1 service delivered to a customer site can be changed to a native Gigabit Ethernet or Fibre Channel service through remote commands, Imregh says.

LuxN's competition in CWDM includes ONI Systems, Adva, Atrica and Terawave.

The street price for the WideWav system starts at \$12,000 per lambda for a four-channel configuration. Pricing also depends on rate and reach requirements. The company currently has no units in evaluation but anticipates mid-June availability.

Separately, LuxN announced a multiyear agreement with Time Warner Telecom, which will purchase LuxN's WavSystem DWDM equipment. Time Warner Telecom is currently deploying the equipment in New York and Columbus, Ohio, for Gigabit Ethernet and other services.

The WavSystem line includes the WayStation WS32340 concentrator, the WavFarer WS32170 access node and the WavPortal WS32020 customer premises equipment.

LuxN: www.LuxN.com

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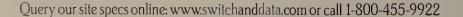
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# Enterprise Applications



Security, VPNs, Network Management, Directories

### Banks explore B2B payment options Briets

Getting businesses to change their behavior, adopt security measures are key.

BY ELLEN MESSMER

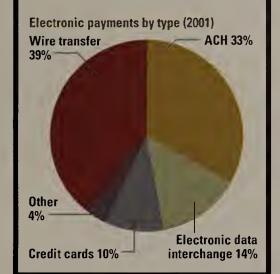
n the U.S. and Europe, banks are struggling to find the right approach to processing business-tobusiness payments on the Web and putting appropriate security checks in place as traditional banking networks, such as the Automated Checking House network, bring new payment methods via the Web.

Using ACH processing directly via the Internet instead of paying by paper check promises to speed online payments between businesses in much the way electronic catalogs have made ordering goods easy.

Online payments seem to be catching on more quickly in Europe, according to banks there. In the U.S., banks are trying to stake out a position in Internet-based ACH processing, but admit there's little momentum yet.

FleetBoston, for instance, six months ago partnered with start-up Equidity to provide a hosted Web service that online marketplaces can use to process ACH buyer payments. ACH payments include direct debit and credit of accounts, and the National Automated Clearing House Association (NACHA), the banking group that sets rules for B2B payments in writing

Wireless transfer and ACH are the most popular ways that businesses pay other businesses electronically, but 83% of the B2B payment market in the U.S. is still paper-based, according to Gartner.



ACH payments, now lets them be done on the Web as long as security procedures, such as using 128-bit encryption.

According to FleetBoston senior vice president Timothy Burt, Equidity's payment-processing hosted service has found takers with a few online market-

places, such as BuildNet. But he says there's little momentum around the service, even though it only costs a few dollars per transaction.

"We're still in the infancy stage with it all," Burt says. Equidity competes against a handful of other Web-based ACH payment processors, such as Clareon; the VeriSign payment service; and Avcient.

#### The cheaper option

ACH payments are far less expensive than credit card processing, which carries percentage-based fees for the sellers. For that reason, ACH — which includes direct deposit and check clearing — is one of the most commonly used business-to-business payments, according to Gartner (see graphic).

At the recent NACHA Payments 2001 conference, Lewis Fuertes, managing director with Chase Treasury Solutions at J.P. Morgan Chase & Co., said he has spent considerable time analyzing online marketplaces and the more private business-to-business Web sites run by one buyer or seller, to determine their online payment requirements.

"A lot of the business-to-business transactions are being settled by check today," Fuertes said. "The biggest challenge in e-commerce is not technology. It's getting [businesses] motivated to change their behavior."

Security is always of paramount concern in payments processing. Two European banks, Holland's Rabobank and Sweden's ABN-AMRO, are engaged in consumer and business banking via the Internet. Both banks give each customer palm-sized Digipass hardware tokens for See Banking, page 66

www.nwfusion.com Go online to see how a major financial firm abandoned its century-old check processing system for a Webbased option.

### **Bowstreet jumps into portals**

Company promises customized access to Web-based content.

BY JENNIFER MEARS

LYNNFIELD, MASS. - Bowstreet, which uses XML-based technology to automate the process of managing and creating Web-based applications and services, has joined the list of software vendors that have jumped into the portal market in recent months.

The company last week unveiled Business Web Portal Solutions, a portal server and tools that Bowstreet officials say will save customers time and money as they create portals to handle the growing number of Web-based content and services they use.

The offering is based on Bowstreet's Business Web factory, a vendor-neutral

Web platform that uses standards such as XML to integrate Web services. The Business Web factory automates the process of creating Web-based applications because programmed components are stored and can be reused, eliminating the need to code changes every time, says Steve Chazin, Bowstreet's director of marketing.

The portal product includes pointand-click wizards that make it easy for non-IT business managers to make changes, freeing developers to focus on creating models of links to different services, rather than having to code new links each time, Chazin says.

Portals are then created on the fly See Bowstreet, 64

the business-to-business firm's comeback following disappointing first-quarter earnings, job layoffs and the abandonment of a \$2.55 billion acquisition of Agile that the company has pinned on a choppy U.S. economy. Mueller replaces Keith Krach, who will continue as chairman.

Business-to-business market-

place provider FreeMarkets

announced it has extended an

aluminum provider access to

place, which Alcoa will use to

vices. Alcoa will also license

agreement with Alcoa to offer the

FreeMarket's B2B Global Market-

source a variety of goods and ser-

QuickSource, an application ser-

vice provider-based offering that

lets buyers create and post elec-

tronic requests for quote, collabo-

rate with suppliers, create and run

online markets and award contracts from desktops. The deal has

been extended through Septem-

IBM unveiled an Internet data

and document exchange, a new

Services. The new commerce

component within its Interchange

engine exchanges business docu-

ments such as purchase orders

between companies using dis-

parate communications and data

transport protocols such as elec-

tronic data interchange and XML.

The software can support new

XML formats and standards as

they evolve, the company claims.

IBM combined its infrastructure

e-commerce enabling services

with Cyclone Commerce's trading

community management software

to develop the Internet data and

Ariba last week said Larry

Mueller was tapped to captain

Mueller will be its new CEO. For-

document exchange.

IBM: www.ibm.com

merly president and COO,

management, customer and

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Ariba: www.ariba.com



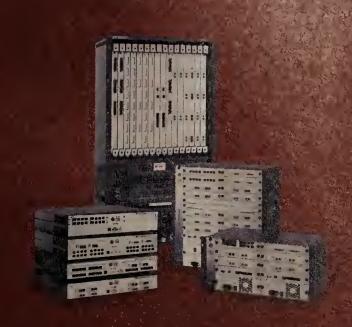
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Bandwidth with Brains

### Stampede puts some zip in Lotus Domino nets

Company's TurboGold update to speed server-to-server mail routing, adds attachment filtering and performance tracking support.

BY JOHN FONTANA

DAYTON, OHIO - Stampede Technologies has what every Lotus Domino network eventually needs - more speed.

The company last week released Version 4.0 of its TurboGold acceleration engine for Lotus Notes and Domino. The software supercharges mail routing between Domino and replication servers between Notes clients and Domino servers, cutting bandwidth usage and replication time. It also has a new set of reporting capabilities that help customers track performance gains and user activity.

As administrators know, Domino doesn't always exhibit the most efficient use of bandwidth. TurboGold's server-to-server mail routing uses a combination of online caching, compression and data streaming that the company claims can halve the amount of traffic between servers. The software does not make any changes to the native mail routing in Domino. It is the same basic technology earlier versions of TurboGold use to speed traffic between clients and servers.

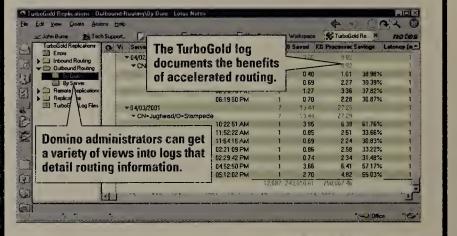
Lotus is adding similar compression and datastreaming features to the next version of Notes/Domino called RNext. But until users complete full upgrades to RNext, which won't ship until next year, they won't see performance gains. TurboGold works with Lotus Notes/Domino 4.5 and

"If you are a distributed organization, then you will be replicating across a large number of servers," says Dana Gardner, an analyst with Aberdeen Group. "You want to optimize use of the bandwidth resources and speed up the process. If you can take care of both of those in one fell swoop, that is a compelling proposition."

Stampede also has added controls that speed replication between the Notes client and Domino server. The controls let end users specify a limit on the size of attachments that are automatically downloaded. Large attachments can be left on the server and only downloaded when needed.

### **Revved up routing**

Stampede's TurboGold 4.0 for Lotus Domino features a new mailrouting engine that accelerates the transfer of mail between servers.



"We have 80 to 85 people using an 800 number to dial in, and if we can cut the download times, it cuts our bills," says Mike Bohlken, manager of application development for Red Wing Shoe. "This product runs in the background and the user doesn't have to do anything. It's not an invasive product, and I like that."

Version 4.0 of TurboGold also accelerates the distribution of Lotus deletion stubs.

The stubs are used in replication so the server where a document was deleted can tell other servers to delete their replicated copies. The stubs are sent between Domino Servers every time replication happens and can generate a sizeable amount of traffic. Stampede also has added the ability to set Turbo-Gold to run as a low-priority service on Windows NT and 2000 servers. The feature previously was only available on

IBM's AIX RS/6000 pSeries platforms.

"It's a nice configuration feature that guarantees TurboGold won't get in the way of other services that are critical to the business," says Gordon Dorworth, Stampede

In TurboGold 4.0, Stampede also added new administrative tools monitor replication, a sort of proof-of-confeature graphically shows the performance improvements generated by

TurboGold.

The TurboGold server runs on Windows NT and 2000; and IBM AS/400 iSeries and RS/6000 pSeries. The advanced edition is priced at \$2,300 and \$7,900 depending on platform. The client runs on Windows NT, 95, 98, 2000 and Millennium Edition. Client pricing runs from \$59 to \$125 based on volume.

Stampede: www.stampede.

### Andes Networks attempts to scale Web acceleration heights

Secure Sockets Layer appliances aimed at off-loading security processing from Web servers.

BY ELLEN MESSMER

MOUNTAIN VIEW, CALIF. --Start-up Andes Networks this month will begin beta-testing hardware designed to greatly speed cryptographic processing used to safeguard Web transactions.

Observers say the company's A5210 devices, which are designed to accelerate processing of traffic encrypted using the Secure Sockets Layer (SSL) protocol, work up to 10 times faster than competing gear from Rainbow and nCipher.

SSL accelerators, which can attach to servers or switches, are used to off-load SSL pro-

cessing duties from Web servers, which can take a major performance hit when processing such transactions via software.

Andes, founded by researchers from Sun and the University of California at Berkeley more than a year

ago, has shown in the lab that its devices can handle up to 5,000 SSL packet/sec while dealing with 128,000 concurrent sessions. The company's rack-mountable boxes each feature 10/100 links, and the company claims they can process SSL transactions at



Andes Networks this month enters betatesting of its A5210 Series line of SSL accelerators for speeding up SSL encryption processing.

> Andes' co-processor based hardware is designed to handle the bulk encryption requirements of large Web sites, which are often supported by large server farms.

> "Andes is set to be a powerhouse," says Jim Vogt, CEO of Ingrian, which sells an SSL processing appliance based on

Rainbow SSL acceleration hardware, but just switched to technology from Broadcom in search of better performance. Vogt says the Ingrian i140, which handles 320 SSL transaction/sec at a cost of \$30,000, does better key management than Andes' boxes by encrypting between the accelerator and Web servers.

Another firm, Chrysalis-ITS, competes with Andes by making an SSL accelerator chip that vendors may OEM, but also licenses its key-management technology to Andes, says Mark Taber, a vice president in the Chrysalis semiconductor group. "Andes is setting the bar that every Web SSL accelerator appliance will need to meet," Taber says, hinting that Chrysalis plans to ship an SSL accelerator that works at gigabit speeds later this year.

Three A5210 Series devices will be made available by Andes this fall. The appliances, which support up to 1,024-bit RSA encryption, will cost from \$17,000 to \$60,000.

Andes: www.andesnetworks.



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### Study cites 'Net backbone for slowing Web sites

BY CAROLYN DUFFY MARSAN

Glitches in the Internet's backbone routing and switching systems cause more than a third of all Web site performance problems, according to a new study by Web site testing firm Mercury Interactive.

The study found that 35% of Web site performance bottlenecks occur outside the firewall, caused primarily by tuning and configuration issues with ISPs' routers, gateways and switches as well as peering point problems between ISPs. Another common problem is that Web sites do not have enough Internet bandwidth, either because they underestimated how much they need or because of a faulty service-level agreement with their ISPs.

"Everybody thinks that the Internet is an information superhighway, but it's really a dirt road full of potholes," says David Gehringer, senior product marketing manager at Mercury Interactive who oversaw the study.

The 35% figure is much higher than Mercury Interactive analysts guessed prior to completing the study. "We figured it would be about 5% to 10%,"

Gehringer says. "We figured it would be a pretty rare instance."

Mercury Interactive based its study on nearly 2,000 Web site load tests conducted for more than 600 corporate customers. Mercury Interactive published a similar report six months ago, but the company did not measure the number of performance problems found on the Internet vs. internal corporate networks and systems.

The new study found that in 25% of all cases, the Web site's connection to the Internet couldn't sufficiently handle the desired load, which caused delays for incoming and outbound requests. Web sites often pay for bandwidth that they aren't receiving from their ISPs, particularly when they have contracts that specify burstable rates.

Other common network problems that slow Web site performance are incompatibilities related to firewalls, overzealous security settings and improperly installed loadbalancing equipment.

"As we're running our tests, our customers often realize that the network architecture at a very basic level is misconfigured," Gehringer says. "By changing some simple settings,



we're often able to double or triple the speed or capacity of the site."

Network

bottlenecks

Other common Web site performance problems include:

- Database tuning problems, which caused 27% of Web site performance problems. Often found in dynamic Web sites that rely heavily on database operations, these problems are usually caused by insufficient indexing, fragmented databases, out-ofdate statistics or faulty application design.
- Application server configuration issues, which caused 23% of system bottlenecks.

These include poor cache or

session management.

App. server

configuration

• Web server bottlenecks, which were found 20% of the time. Improper server configurations and insufficient memory usually cause these bottlenecks.

Overall, Mercury Interactive found that 98% of the Web sites it tests have significant performance problems, a figure that is consistent with the company's findings six months ago.

Typically, a site is able to scale up to only 15% of the anticipated performance level when it moves from development to production, Gehringer says. "Most of the sites have purchased the right amount of hardware to do what they want to do, but they've missed some basic settings or tunings," Gehringer says. "We're finding performance problems in some of the best sites on the Internet, sites that are not short money or talent."

Mercury Interactive says its customers are able to improve overall Web site performance by up to 400% after conducting a series of performance tests and resolving the configuration problems that are found. When the performance problems are found outside the firewall, companies can take the data from their performance tests to their ISPs to help pinpoint and fix problems.

Mercury Interactive's findings ring true to Theresa Lanowitz, research director for applications development at Gartner.

"The application development side of the IT organization and the operations side of the IT organization usually work in silos," Lanowitz says. "The application development group does testing with respect to how that application performs standing on its own. They don't necessarily look at the larger picture of how it will perform with a large load running on the production environment."

Lanowitz says hosted testing services from such companies as Mercury Interactive, Compuware and Rational Software are useful in testing how a Web application will perform in the real world before it goes live. "When you have the hosted service set up and have people who as their professional career test applications, they understand performance, and they understand load balancing," she says. "They can look at the application and the platform and tell you where things should be because of the repetition of what they see."

Mercury Interactive sells two Web site testing services: Active-Watch for monitoring Web site performance over the Internet and ActiveTest for load-testing Web sites. Mercury Interactive's study was based on the firm's ActiveTest customers.

Mercury: www-heva.mercury interactive.com

### Start-up aims to off-load Web site mgmt. chore

BY DENISE DUBIE

MEDFORD, MASS. - Customers looking to outsource their Web site management without having to invest in new network management tools may want to check out InterOPS Management Solutions.

InterOPS, a management service provider (MSP), last week launched a set of three remote Web site management service offerings. With the services, customers can choose a consolidated view of the support elements in their Web environment from inside the firewall or an external view that manages Web site performance outside of company firewalls. The third level of services lets customers collect

### PROFILE: INTEROPS MANAGEMENT SOLUTIONS

Based:	Medford, Mass.				
Founded:	Launched on April 30, 2001				
Services:	A combination of monitoring, measurement, management, consulting and education services.				
Key personnel:	President & CEO Ed Mallen, a veteran of IBM, NetCentric, Xionics and Interleaf. Founder and Vice President of Operations Chris McLellan, former vice president of Internet operations at Fidelity Investments.				
Financing:	\$5 million from Fidelity Ventures and angel investors.				
Competitors:	Customers Insurance.com, Fidelity Investments.				
Fun fact:	InterOPS management team knows how to mix the intellectual with the physical: Mallen is an avid surfer; McLellan can be found yachting and practicing martial arts in his free time.				

performance and network data that could serve to help them better optimize their Web site, the company says.

Company CEO Ed Mallen is an industry veteran, having worked for NetCentric, Interleaf and IBM. Mallen says the company's services work with customers' existing network management software from vendors, such as BMC, Hewlett-Packard and Tivoli. The company can also tap into data collected by such firms as Freshwater Software and Keynote, which perform Web site monitoring from outside a customer firewall.

Unlike competitors such as NOCpulse that sell proprietary products along with their service, InterOPS customers don't need to add software or hardware to their network when they sign up for service, says Gartner analyst Eric Goodness. InterOPS also competes with MSPs Triactive and Totality.

Mallen says Insurance.com See InterOPS page 66

On the road to convergence, how strong is your engine for change?



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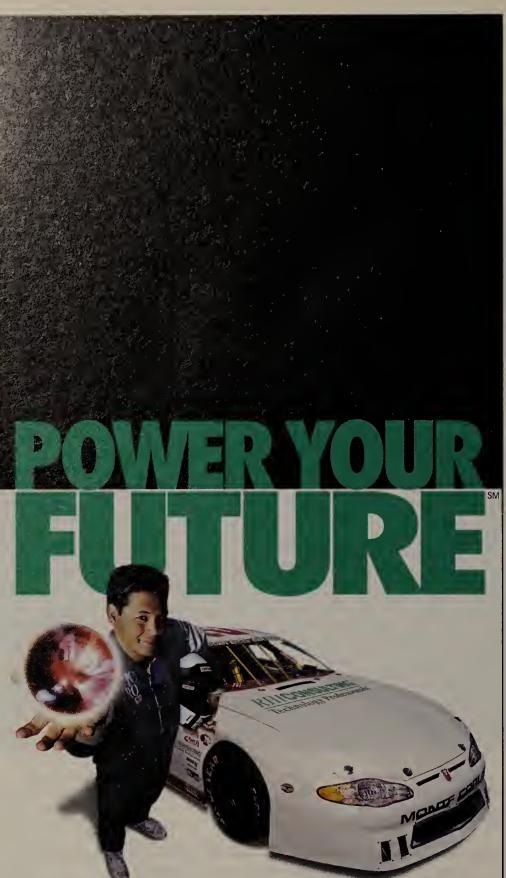
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### Enterprise Applications

#### Bowstreet, continued from page 57

according to user specifications, assembling business process components from legacy systems and client/server applications such as customer relationship management and enterprise resource planning. The portals also can incorporate Web services from other vendors as they become available. Bowstreet also offers plug-and-play portal modules — ready-to-use Web services

such as news feeds, search engines, and discussion forums.

Gene Ostrovsky, vice president of operations at The Thread, provider Web-based supply chains for the apparel industry, says other portal vendors couldn't match the flexibility that **Bowstreet** offered.

"One funda-

mental requirements of The Thread when we set out to build our software was that it has to adjust to individual customer business needs, it has to be flexible, and very personalized," Ostrovsky says. He notes one business may run dozens of different supply chains in each fashion season.

Leo Massarani, The Thread's CTO, says Bowstreet's technology helped the company save time and as much as \$4 million in development costs. "We expect similar savings in building applications that require combining multiple Web services into a single Web page," he says. "As Web services mature and become more prevalent, using [the Bowstreet portal technology] has a potential for even greater savings."

#### Migration to the Web

There is no question Web services are maturing, observers say. Microsoft, IBM, Sun, Oracle and Hewlett-Packard are all moving into an area that has been Bowstreet's target since it was founded in 1998: moving applications, data and business processes beyond the PC and intranet by making them accessible via the Web.

This industrywide move is making portals even more important as companies strive to manage disparate content and business processes with the aim of customizing their delivery to

employees, customers and partners, Chazin says. Consider that Microsoft, IBM and SAP have all announced portal initiatives in recent months.

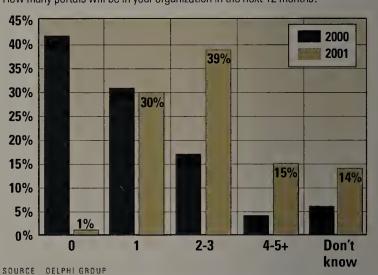
"It's almost evolved to the point now that [the portal] becomes the killer app, if you will, of what a business Web is," Chazin says.

Indeed, studies show businesses in larger numbers are looking to launch portals, and are finding that a single, overarching enterprise portal won't do. In fact, because large enterprise

### Portal power

At least one survey shows organizations are implementing multiple portals, rather than a single portal, for the whole company.

How many portals will be in your organization in the next 12 months?



customers are looking for flexibility and scalability, a portal platform is becoming more important than the portal interface, says Larry Hawes, an analyst with the Delphi Group.

That's why it's not surprising to see companies such as Bowstreet, and other e-platform providers such as Iona and Tibco offer portal features,

Chazin says traditional portal vendors have approached the market differently from Bowstreet, offering static products that aggregate content and services and have to be hard-coded for customization.

"All of the portal vendors grew up in a world trying to emulate a Yahoo and Excite, and we recognized that isn't scalable," Chazin says.

"They have to have at their heart a way to deal with aggregating data, aggregating content, aggregating services and dynamically generating customized views for anybody, anywhere, anytime," Chazin adds.

Bowstreet's Business Web Portals package starts at \$300,000 and is available now.

Bowstreet: www.bowstreet.com





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#### Enterprise Applications

Banking, continued from page 57

generating onc-time passwords or even electronically signing payment requests every time they wanted to initiative payments via the bank Web sites.

"We almost don't have [paper]

checks in the Netherlands," says Bert Willems, Rabobank's director of telebanking operations. He said 320,000 customers now use the Internet for banking. "But if there's no strong security, there'll be no virtual banking."

Rabobank gives customers Vasco Digipass 800 tokens and smart card readers for two-factor challenge and response authentication to prove their identity online, Willems says. The Digipass 800 becomes activated when the user plugs in his smart-card based banking card, which is widely used in Europe.

Rabobank isn't involved with business-to-business marketplaces because there aren't many of them in Holland, Willems says. However, ABN-AMRO's LaSalle Bank subsidiary has set up a payments-processing Web site it calls CashPro that's available to process ACH and procurement card payments at the Ariba marketplace, among others.

"When the customer wants to make a transaction via ACH at the Ariba marketplace, we bring you the screen that allows you to do that," says Milton Santiago, first vice president and director of electronic banking at ABN-AMRO Services.

Santiago says passwords and IDs are considered acceptable in the U.S. for authentication, but in Europe there's more inclination to depend on stronger two-factor authentication.

To that end, ABN-AMRO makes available the Digipass 300 so customers can input a dynamic password for access to ABN-AMRO's banking Web site for making business-to-business payments.

InterOPS, continued from page 62

and Fidelity Investments have signed on with InterOPS.

InterOPS places an object request broker, or a software agent, in a customer environment and establishes a VPN between the customer site and InterOPS' Internet management center, or uses Secure Sockets Layer to ensure a secure connection. APIs deal directly with the customer's management tools and send that information back to InterOPS, where data is collected and analyzed.

Using a browser, InterOPS and customers see the same consolidated view of network and Web site performance data.

Gartner's Goodness says the lack of additional network tools, along with the process management InterOPS builds into its service offerings, may set the MSP apart from others. "InterOPS is like a personal trainer. They make sure you do what you need to, do it enough times and do it right," Goodness says. "Engineers love firefights, but oftentimes when fixing a complex problem, they don't take the time to establish a process."

Customers sign up for a one-year contract, and InterOPS determines a monthly service fee for customers depending on service option, infra structure level and complexity. Pricing can range from \$15,000 to \$30,000 per month.

InterOPS: www.interops.com



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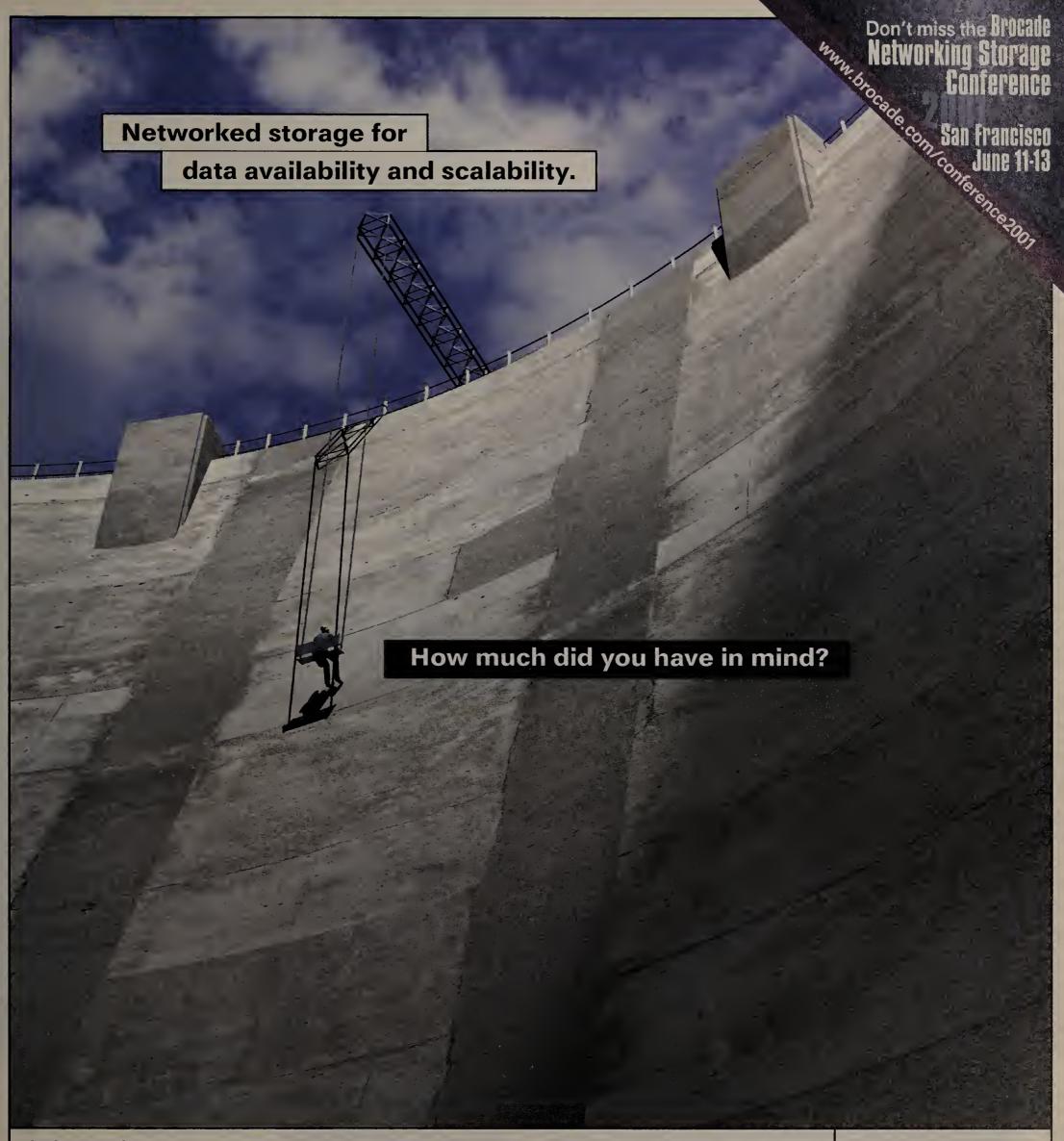
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## Database optimized to handle XML applications

BY JOHN FONTANA

REDWOOD CITY, CALIF. — XML is seeping into every nook and cranny of

the computing industry, and now there are databases based on the data markup language that IT executives may find a speedy alternative to traditional databases.

This week Ipedo is releasing its XML database, which stores data in native XML format so it can be

quickly searched and retrieved. The only other database that natively stores XML is the Tamino database from Software AG.

With a traditional database, incoming XML data must be translated into a format the database can understand and store in rows and columns. Outgoing data has to be parsed back into its XML format and translated.

Ipedo says cutting that overhead by storing the data in its native XML format can speed data access by up to 10 times. IT executives who run large Web-based applications that rely heavily on the standard markup language may find performance benefits in cutting out that overhead.

"Ipedo creates an in-memory index of an XML document so you can quickly find any portion of a document," says Glenn Copen, director of application development for Pro-Logic, which creates Interactive Electronic Technical Manuals (IETM) for the Department of Defense. The IETMs are used on-site to service heavy equipment such as airplanes.

Pinpoint access to particular sections of the manual helps mechanics quickly do their job.

The database has many of the same trappings of a traditional relational database, but with an XML twist. The XML Database supports the XQuery language, which is used to extract data from XML sources. It also supports the Simple Object Access Protocol, an XML-based application-to-application messaging system, so queries can run across databases.

But the key may be the efficiencies obtained when using XML Stylesheet Language Transformations (XSLT), a language used to convert an XML document into other formats. It is widely used to convert XML to HTML for screen display.

"We can show a 35% to 65% time savings in XML transformation alone," says Tim Matthews, CEO of Ipedo.

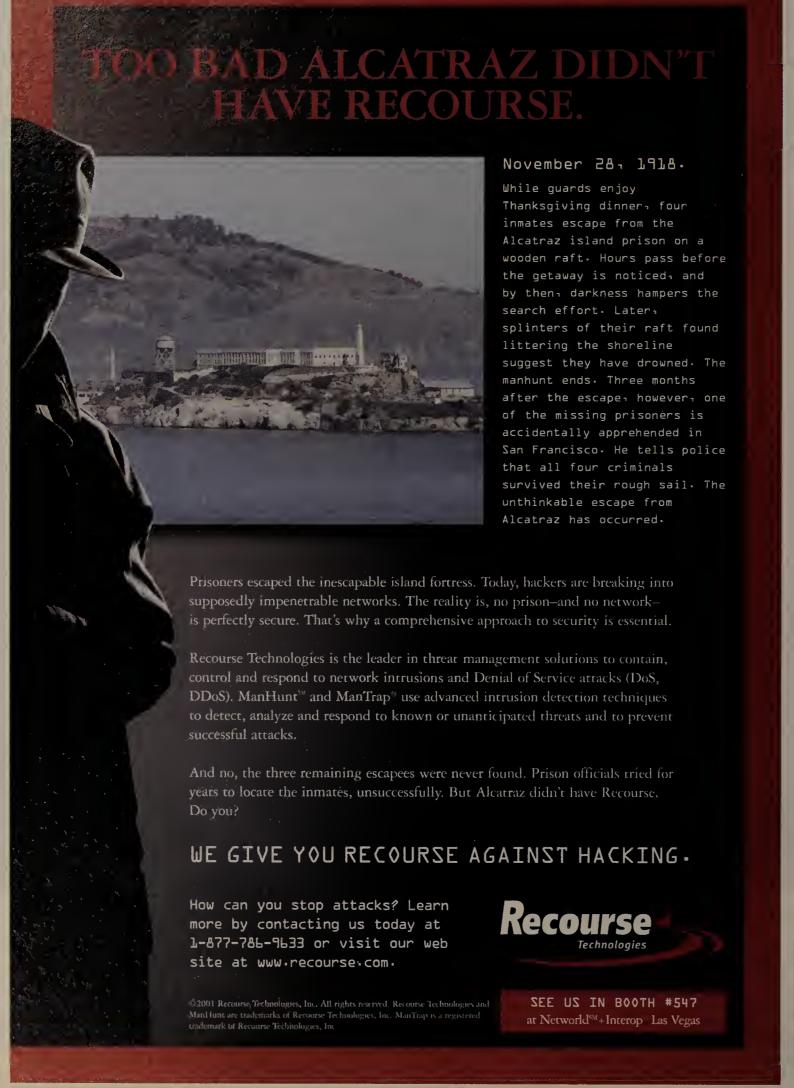
"We are not trying to tell the world to chuck their databases, but if you have a lot of XML-based data, you should keep an open mind to new technologies," he adds.

The XML Database can link with conventional databases using Java Database Connectivity, meaning XML data can be concentrated in the Ipedo database.

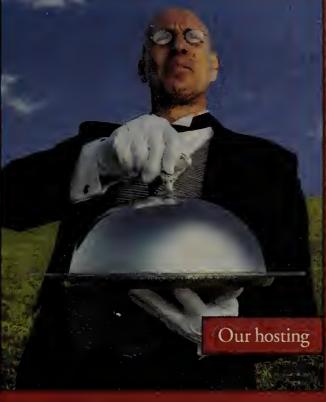
The database is compatible with IBM's WebSphere and BEA's WebLogic application servers. It runs on Linux, Solaris and Windows.

Pricing for Linux and Windows servers is \$50,000. Pricing for Solaris is \$90,000.

Ipedo: www.ipedo.com







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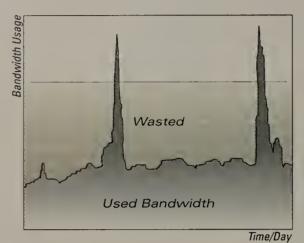
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# **Application Priority Switching: application optimization, differentiated services and SLM**

new generation of serviceenabling products is moving center-stage. The recent trend to huge proliferation in type and quantity of applications running over

the extended network has collided with another force the convergence of today's mixed communications environment around the ubiquitous standard of

IP. Termed



Network utilization peaks and valleys necessitate high level of bandwidth usage, but space is wasted if prioritization is absent.

a 'network application priority switch' (or NAPS), this device is able to introduce both quality of service for critical applications running over a shared network access link and bandwidth sparing for these converged and congested networks.

NAPS have the ability to optimize the transmission of business-critical applications within an Enterprise environment., They constitute the enabling technology for the introduction of application-oriented differentiated services and service level management (SLM) for a Network Service Provider (xSP).

The Industry is currently focused on services and service-level management products to meet the emerging demands of electronic business. Enterprises and electronic commerce companies are trying to create one-to-one customer relationships over the Internet and need to manage technology and customer experience to that granularity. New trends, such as business-to-business and business-to-consumer transactions necessitate an ability to manage and prioritize mission-critical applications at the Network Access Point. Performance and management should be measured, not via the old L2 parameters (committed information rate, or CIR, and link utilization for example), but rather by new benchmarks that pinpoint the actual applications being served - such as application throughput, application CIR and the like. Additionally, carriers and application service providers (ASPs) planning higher margin application hosting and apps-on-tap services need applications and IP-

focused servicelevel agreements to view and manage Layer 7 flow. Management of the application level and the ability to charge for higher-level services is the key to achieving service differentiation. Ultimately, service differentiation will drive cus-

tomer expansion and, ultimately, produce increased profitability.

#### Network-wide Quality of Service (QoS)

Network-wide quality of service (QoS) reflects the problem of delay inherent in the end-to-end transmission of critical applications and the protocols that service those applications. The customer impression is of poor business response or, worse, technical disruption of the service offered e.g. VoIP. Solutions to these problems have to be composed of a class of service (CoS) element that addresses the handling of critical applications as they traverse the public network; and a policy element that addresses how these relative priorities are set within the context of the business environment. The overall result is optimized QoS that applies to the mix of corporate traffic as a whole and the perceived quality of individual applications within that mix. Quality of Service may be simply expressed as the provision of adequate end-to-end bandwidth on an application-by-application basis, guaranteed against disturbances introduced through compromise of that traffic flow by changing network conditions. The architecture of today's networks dictate a single point of constriction of overall bandwidth, typically the network access pipe. Simple LAN-based, static, bandwidth-shaping solutions are inadequate, failing to accommodate to the rapid dynamics of today's crowded data pipes. The huge proliferation of services and protocols demands a solution that:

Looks at all the traffic running on the network.

Looks beyond the application header to identify sub-applications characterized beyond Layer 7.

Adapts to ever changing network conditions.

Reprioritize all voice and data traffic in real-time and in accordance with set policies.

Only a solution that analyzes traffic priorities within the context of overall network health can both enable the active network assurance required, and return the metrics that verify performance levels to the different management levels within the corporate infrastructure.

#### SLM to application level and beyond

The notion of service-level agreements and service-level management is not new. Business and IT managers alike long have realized that customers expect detailed information about their service flow. Firstgeneration SLM tools that report on availability provide data such as mean time to restore service (MTTRS), sub-second response times and the like. This just isn't enough. These older tools typically focus on trouble ticket-generated violations that do not meet the needs of today's business-critical operations. These products typically lack the ability to take actions to remedy problems with the flow of services. Other tools simply focus on LAN traffic and either rely on the collection and processing of RMON-type data or provide basic traffic shaping, reporting on individual LAN segments only. They are not positioned to mine 'end-to-end' app-sensitive information, such as SAP/R3 response times or FTP vs. enterprise resource planning (ERP) utilization. Even frame-relay-based information, such as FECN, BECN, and PVC, or other Layer 2 customized SLM tools, like those from Visual Networks, fail to provide the necessary information on e-commerce and ERP flow. They simply cannot view application-level flow. This is unacceptable in an e-commerce world. It means very little for e-commerce end-users to know that their frame relay SLAs are being met; instead, they need application performance and service-usage agreement guarantees

Typical carrier-class IP switches support Layer 2 monitoring, which by definition precludes guarantees at application levels. But because application service providers are trying to provide L7 services such as app hosting, service-level agreements must move to L7 as well. Simply put, current L2 SLAs are meaningless, and the existing L7 monitoring is frustrating at best. Today's xSPs all realize that SLM is no longer simply a marketing ploy; indeed, it has become the very basis for differentiating companies' offerings. To beat their competitors, carriers need to offer better SLAs - they must offer visibility and control at Layers 3 to 7. They must also be able to track and manage application services. The success of ASP and ISP business models hinges on their ability to manage and customize the flow of applications in a dynamic fashion. Other currently available tools just don't do that.

#### New Services, new SLM Requirements

In Today's market, the focus is shifting to higher layers and the active management of service flow. Here are the requirements that are driving the new generation of SLM products.

#### **1.** IP Differentiated Services and QVPNs

Managing at the IP level is essential if service providers are to woo large corporate accounts away from leased-line or frame relay services towards IP services. NAPS provide a means of delivering low-cost differentiated services - both guaranteeing IP tunnels (provisioning QVPNs) and application-based CIR (committed information rate). By providing active IP service-level agreements, that can be modified in real time according to a user's traffic flow, and that focus on bandwidth availability, nodal delay and IP packet throughput, service providers can now offer their customers a deeper view into what's happening at the IP level.

#### 2. Control beyond Application Level

IP service-level agreements certainly raise the bar for service-level management. But they fail to reveal the complete picture. In the new market, application-level SLAs must provide enterprises and service providers with a unique way to differentiate and manage services on a per-customer basis. This class of servicelevel agreements enables IT departments to categorize traffic based on the business value it provides. For example, it allows a corporate IT manager to manage an SAP/R3 service differently than a less-critical FTP service. This ability was developed after major corporations and service providers discovered that high levels of non-critical traffic were found to be sharing valuable IT resources with business-critical traffic. It doesn't matter how much a company spends on the purchase and deployment of popular ERP applications - it takes only one congested WAN link between two company sites to kill performance and waste resources. Companies need the capability to parse, prioritize, manage and report on disparate traffic. Further, providing xSPs with the ability to monitor the uptime of an SAP/R3 service, as well as bandwidth and performance guarantees on a peruser basis, is an extremely powerful concept.

#### OldReality NewReality Dynamic IP and App-level SLAs provide detailed and customized Inability to rationalize WAN bandwidth led to purchase of un-needed circuits. monitored metrics. SLA violations are avoided in real Non-existent or embryonic time by leveraging on adaptive traffic shaping and prioritizing techniques. customer network management views. Traffic shaping and prioritization lundamentally drive the core SLM One size SLAs lits all. Management of traffic flows is not linked to a cohesive SLM strategy. SLAs are customized per individual customer's needs. No proactive method to control SLA violations. customer to access their data to perform independent SLA verification. "Smart" management of WAN bandwidth incurs savings Static SLAs report on Layer 2 metrics only. in II overlays.

#### 3. Integrated Application-specific SLAs – VoIP SLA

As Enterprises strive to capitalize on new CTI applications that integrate Voice and Telephony, service providers have stepped up to the bar to offer a multitude of VoIP services. New metrics are required to provide assurance in the face of the problems peculiar to this class of Layer 7+ applications - packet loss ratio, packet delay, jitter and service availability. Service providers need to truly differentiate their services, and so themselves, and must step up to the bar to offer SLAs of a level of sophistication commensurate with these services.

#### **4.** Use of dynamic re-prioritizetion and bandwidth allocation

Simple reporting of SLA violations is insufficient for internet-enabled enter-

prises. To succeed in today's economy, service providers must utilize management tools that take advantage of a cornucopia of subsidiary

technologies - total network health monitoring, dynamic reprioritization, adaptive policy management.

This differentiation of traffic is an important tool whereby traditional carriers may enhance and measure their own differentiated service offerings. Likewise, ASPs and other xSPs that offer pay-as-you-go (or pay-for-performance) models also benefit. In response to these new requirements, enterprise users and service providers are looking for ways to control traffic flow and ensure that the overall performance is satisfactory. Such market realities call for products that can (a) monitor the network (b) report on utilization by application (c) shape the traffic stream to guarantee the performance of selected applications and (d) offer comprehensive end-to-end management capabilities. NetReality is one of a new breed of players whose dynamic and active management

solutions will replace the passive monitoring solutions deployed in the past.

#### **Enter NetReality**

Collectively these efforts represent huge expenses. A rapid return on investment is clearly expected and so corporations are finding they have to change their fundamental servicemanagement models. Until recently, though, those corporations lacked the means to manage at the IP and application level; they lacked the ability to use traffic shaping and/or re-prioritization to control the expensive WAN links. This has now changed. NetReality has developed the tools to propel these companies into a new world of IP-based servicelevel management. In addition, NetReality's

IP Traffic **NAPS** saves companies pre-IT cious dollars by obviating costly and unnecessary bandwidth upgrades; optimizing delivery of revenuecritical HIGH Size, Number and business

applications; and eliminating expensive network downtime.

A NAPS can control traffic across the network access link, anticipating problems that arise with congestion and re-prioritizing traffic to preserve the integrity of critical applications. This allows enterprises to garner greater value from existing networks and access links - instead of blindly procuring more bandwidth, active management of the existing traffic and re-prioritization based on relative importance of these applications enhances the business value associated with them.

NetReality's WiseWan family of products addresses the needs of enterprise users, ISPs, ASPs and ecommerce enablers. The WiseWan NAPS delivers an industry first: integrated WAN service management that performs both service-level management and active bandwidth

management functions at the application level. Using its adaptive ban 1width-shaping technology, automated traffic shaping, per-user defined policies, predictive intelligence and real-time IP and application-level monitoring, WiseWan is fundamentally altering the traditional SLM market space. WiseWan comprises a modular hardware/software platform that seamlessly deploys across any open network, in a consistent, easyto-use, expandable and cost-effective manner. With its ability to manage integrated voice and data traffic over IP and frame relay networks, Wise-Wan fits into an existing frame relay circuit or a V.35 connection. It can even replace a CSU/DSU. The plug-and-play architecture lets WiseWan continuously collect, manage and report on frame relay and circuit traffic to the level of each individual circuit. Such granularity supports customized IP and frame relay service-level agreements.

#### Summary

Network Application **Priority** Switching (NAPS) is a technology that is coming into pre-eminence in today's converged networks where differentiation at the higher end of the protocol stack is now more important than differentiating the lower level protocols that distinguished legacy applications. The WiseWan NAPS portfolio provides the market with solutions that deliver value, including shorter payback periods, improvements in IT efficiencies and IT cost control, and insightful customer management. One of the key selling points of NetReality's WiseWan solution is its ability to perform application-layer SLM and traffic-shaping functions. This makes the solution extremely attractive to both corporate operations and service providers. It enables not only the monitoring of service-level parameters but also their automated enforcement without having to rely on manual intervention. For medium to large businesses, xSPs and other e-commerce enablers that are looking for creative, 'pay-as-you-go' ways to achieve differentiated services, WiseWan offers the most comprehensive traffic management and SLM solutions at the most competitive prices. With its open and scalable architecture, WiseWan takes an innovative approach to satisfying key WAN management and SLM needs today while providing a flexible path for the future.

#### Enterprise Applications



'Net Insider . Scott Bradner

#### MUTTERING ABOUT VOICE OVER IP

hat is it about voice over IP that creates such passionate dogmatism? Far too much of what passes for debate about the future of voice over IP is dominated by assertions of perfect foreknowledge.

Considering the track records of most prognosticators, I will not add to

the conclusions as much as sketch some of the factors that will enter into determining the future — a future I predict will happen in real time.

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PROVEN SOLUTIONS FOR STORAGE MANAGEMENT

Debate about voice over IP is dominated by the subject of quality of service (QoS) — at least when anyone who has ever worked for a phone company is part of the discussion. Some have an almost anal fixation on the topic, almost as if they had never heard of cell phones.

The lesson of cell phones — that QoS is not the only factor worth considering - should have been internalized by phone people by now, but that apparently hasn't happened. Too many of them seem to think that no one will use a less-than-perfect phone no matter what other factors might be there. This did not turn out to be the case with cell phones, where the main competing factor was convenience.

In the case of voice over IP, the big factor is cost and will be features. At this point, voice over IP comes at no extra cost — free service might just cure some selectivity.

What factors do affect the quality of voice over IP?

First there is latency. A round trip from me speaking to you and you responding to me needs to be less than about 300 milliseconds. Otherwise, we tend to talk over each other. That latency level is not all that hard to meet in today's networks. The voice coder/ decoders (codecs) can take about 25 milliseconds combined each way, so that leaves about 250 milliseconds for network latency. As I write this, I'm seeing a network round-trip time between East and West coasts of 101 milliseconds (21 hops), so that would leave 150 milliseconds to spare.

Another factor is reliability. Modern codecs can easily deal with 4% to 5% packet loss with no discernable quality degradation.

Because I normally get less than 2% packet loss on the 'Net, I should get quality at least as good as a normal phone and better than a cell phone.

So what's wrong with this picture? I'm working late Saturday night — the results might be rather different at 2 p.m. on a weekday.

How about prioritizing the voice data on the 'Net? That might help quite a bit, but why should someone other than my ISP honor the prioritization because there is no way for me to pay them to do so?

Then there are the regulators. Voice over IP is against the law in more than 40 countries because it takes revenue away from the telephone companies (and taxes away from the governments).

Not a clear picture, but "free" is a factor to remember.

Disclaimer: Harvard does not generally comment on free things and has not in this case.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com

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capacity grew over 50%.

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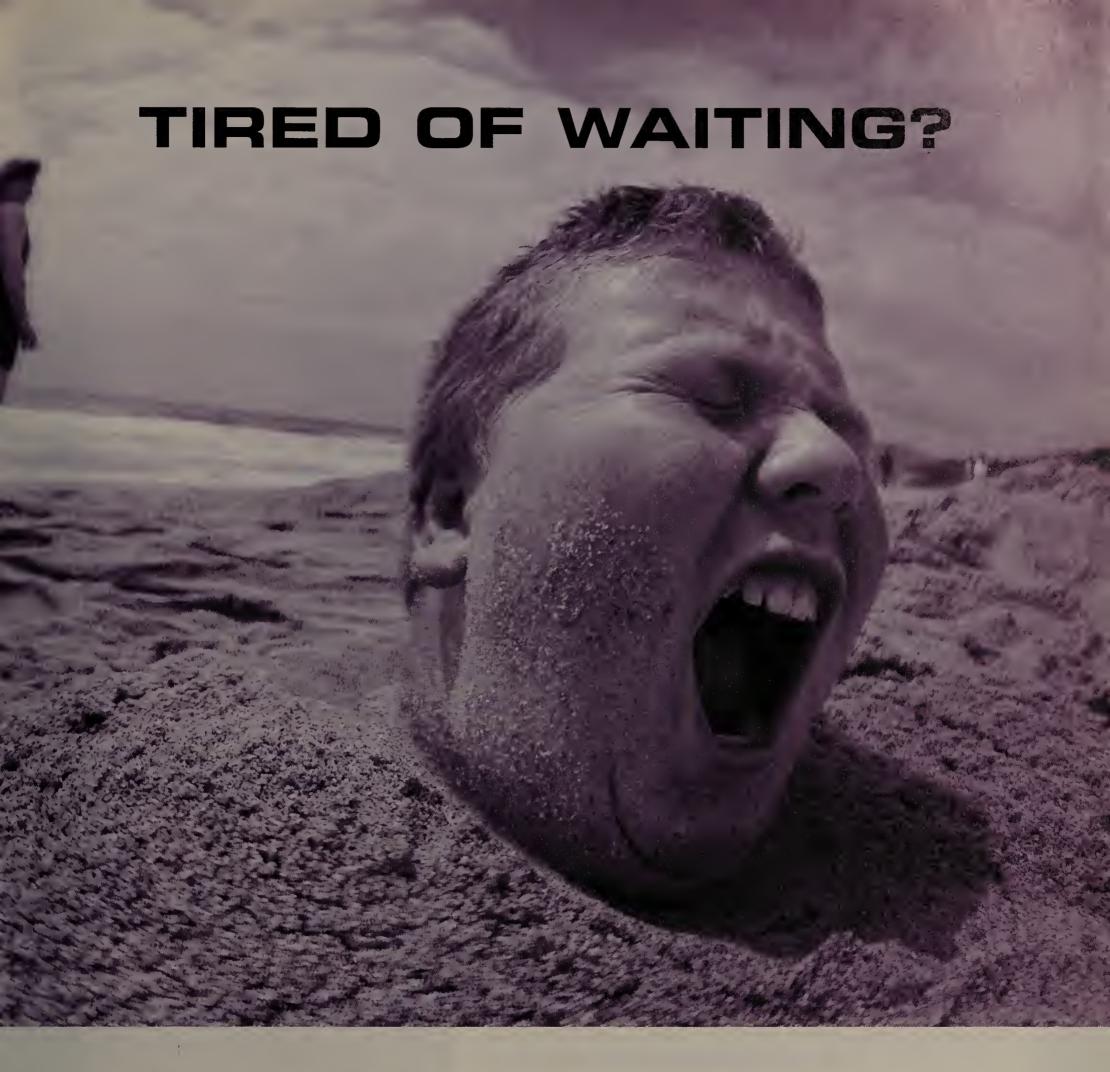
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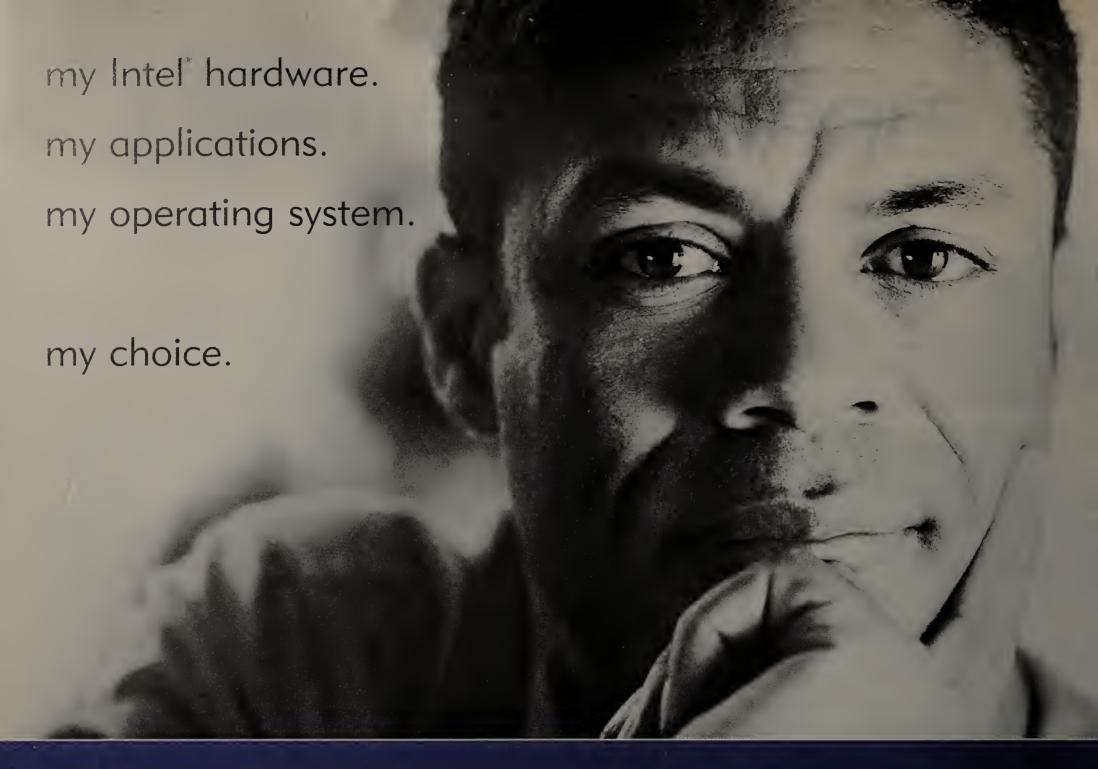


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# Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

# Dr. Intranet



By Steve Blass

We are putting together a report on best practices in intranet development. What resources on the Web would give me an

indication of what constitutes best practices in this area?

Searching on the phrase "world's best intranet development practices" and other variations on the theme through your favorite search engine will provide a wealth of references to "best practices" and "intranet development" case studies that all boil down to "planning your work" and then "working your plan." Many publications and vendors have published best practices information and not all of it is proprietary marketing material. My recommendation is to look to the professional organizations in the field(s) of interest. If you need world's best program management guidelines, go to www. pmi.org. For a best practice perspective on business systems development, look at www. dsdm.org.

For software development best practices, go to www. sei.org. System administration guidelines can be found at the system administrator's guild, www.usenix.org/ sage/. Security best practices information can be found on www.sans. org. Best practices in intranet development vary as the organizational problems to be solved change, but rapid prototyping, feature churn and flexibility, along with attention and response to user experience feedback seem to constantly make the best practices list.

Blass, a network architect at Change@Work in Houston, can be reached at dr.intranet@ changeatwork.com.

# Softswitches enable voice/IP services

BY ALI KAFEL

he economic advantages of packet voice are driving access and core voice networks away from circuit switching and toward packet switching.

In these next-generation carrier networks, voice traffic will be directed between traditional voice networks and new packet-based networks by media gateways and media gateway controllers that will be handled by softswitches.

The concept behind these new networks is that media gateways, signaling gateways, media gateway controllers and application servers will be divided into separate logical componetwork nents, communicating with one another through the use of intraswitch protocols such as Media Gateway Control (Megaco), Media Gateway Control Protocol (MGCP), SCTP/M3UA and Session Initiation Protocol (SIP).

softswitch communicate with the SS7 network. Sometimes the signaling interface is separated into stand-alone hardware called a signaling gateway.

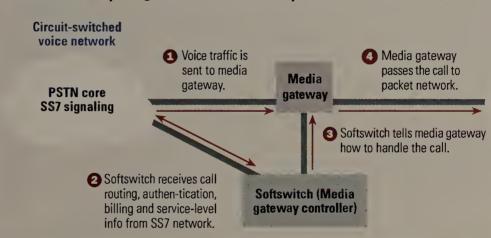
Softswitches do not replace anything in a network. A softswitch is part of a whole functioning switch. Part of the confusion when defining a softswitch is that some people consider only the media gateway controller when they think of a softswitch, some also include the signaling gateway, and others consider the softswitch to be the media gateway controller, signaling

- Reliability Softswitches must be reliable to carrier standards.
- Support for multiple signaling and control protocols Softswitches must support emerging and established standards.
- Scalability Softswitches must meet carrier network requirements, supporting thousands of call attempts, also known as Busy Hour Call Attempts and simultaneous calls.
- Open application interfaces Softswitches must support third-party soft-

#### HOW IT WORKS

#### Softswitches

Softswitches help bridge circuit-switched and packet-switched networks.



Packet-switched data network

Packet core Optical backbone ISP/Internet

#### A softswitch defined

At the most basic level, a softswitch is media gateway controller software that provides the call control and resource management for a media gateway.

Call control relates to the setup and tear-down of calls, including call routing (where the call is coming from and where it will be sent) and service selection (does the user have caller name service or some other enhanced service). A softswitch also provides call authentication and authorization (what calls is the line allowed to make), and accounting services by accessing information available in an existing Signaling System 7 (SS7) network.

The SS7 signaling interface lets the

#### Got great ideas?

Network World is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).

gateway and application server.

The one area of consensus is that no one includes the media gateway as part of the definition of a softswitch, although the media gateway is a significant part of the overall switching platform. A media gateway is the physical platform that handles traffic and physically interfaces to the public switched telephone network (PSTN), IP and ATM networks.

#### **Softswitch requirements**

Next-generation switches must support voice services — not only for IP- and ATM-based networks but also for the time-division multiplexer (TDM)-based PSTN. In addition to call control and resource management, there are other requirements of softswitches and next-generation switches:

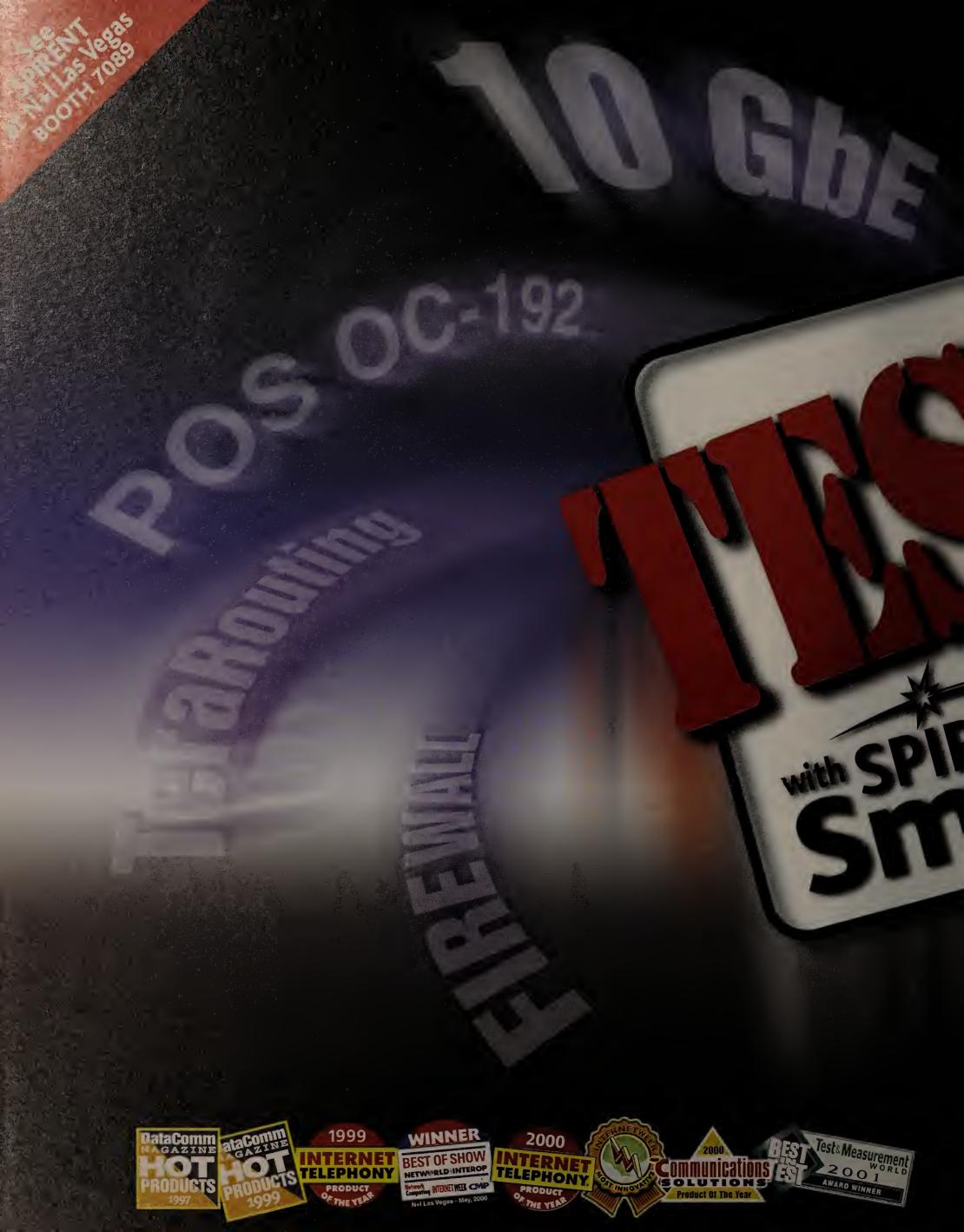
- Media independence Softswitches must be agnostic in regards to the network (such as ATM, IP and TDM).
- Interoperability Softswitches must work with other softswitches and media gateways from multiple vendors.

ware applications and services.

Softswitch architecture provides two major advantages over current PSTN switch technologies. The first is openness between subelements of a next-generation switch. This openness promotes the ability to mix best-of-breed components, which gives service providers greater flexibility and a clear growth path. A service provider can buy a media gateway from Vendor A, a softswitch/media gateway controller from Vendor B, a signaling gateway from Vendor C and an application server from Vendor D.

The second major advantage of softswitches is that they give service providers added flexibility in providing new services. A service provider could develop telephony services that could be implemented on the application server. They do not have to depend solely on a switch provider for a critical service, as is the case with traditional PSTN switches.

Kafel is vice president of marketing at Telica. He can be reached at akafel@telica.com.







🛮 Gearhead . inside the network machine . Mark Gibbs

#### A CLICK OFF THE OLD BOT

e just got back from the National Association of Broadcasters exhibition in Las Vegas, so our wireless coverage will be delayed a

couple of weeks.

This week we'll indulge in a diversion into the netherworld of Web servers with a neat Windows utility called Click Bot from Gem Software (http://blake. prohosting.com/clickbot/).

This is a useful tool you will appreciate if you have ever had to debug Web applications. In essence, Click Bot is a simple Web browser interface that lets you send data to a Web server and see the raw content returned. Installation

is simple and takes less than 1 minute.

When run, Click Bot presents a simple user interface with a field for entering URLs, a box for Web server output (with buttons to copy its contents to the clipboard or save it to a file), along with more fields for submitting CGI form data, adding a referrer URL (so you can lie to a Web server about which server you got its URL from) and a cookie string (so you can fake cookie data).

The tool supports HTTP get and post operations in single and multiple execution modes. And by checking boxes, you can select whether cookies should be sent, if the server response should be shown, whether only headers should be displayed (that is, no display of page contents and the connection to the Web server is closed as soon as the header is read) and whether the server's response is even read at all.

You will occasionally notice that a number of buttons on the Click Bot user interface are grayed out. This is because the server is keeping the connection open (that's the "stay alive" feature that is used to optimize the throughput between a server and a browser). There's a button that lets you manually close the connection to a Web server.



1=awful, 10=insanely great

As much as we like this tool, Click Bot has some deficiencies. We'd like to be able to talk to Web servers on ports other than the standard HTTP port 80. A more ambitious requirement would be to have support for Secure HTTP.

We'd also like to see field entries stored for later use — for example, you might want to recall form data for reuse — and we'd like a logging function that records request sent and response received for multiple requests. In the current version, each request clears the response window, and collecting a sequence of transactions would be amazingly tedious.

Another issue is the inability to copy just part of the server response — for example, the cookie string sent by the server. You'll have to use a text editor to copy the cookie to Click Bot's cookie specification field. And we'd like to see an estimation of throughput achieved when a multiple request is generated.

Complaints notwithstanding, Click Bot is useful and at \$30, a reasonable buy. We award Click Bot five gear teeth out of 10.

We like this utility, but we'd also like to bear from you if you have a better tool. Recommendations to gearbead@ gibbs.com.



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DIGITAL LINK IP Access for Managed Services

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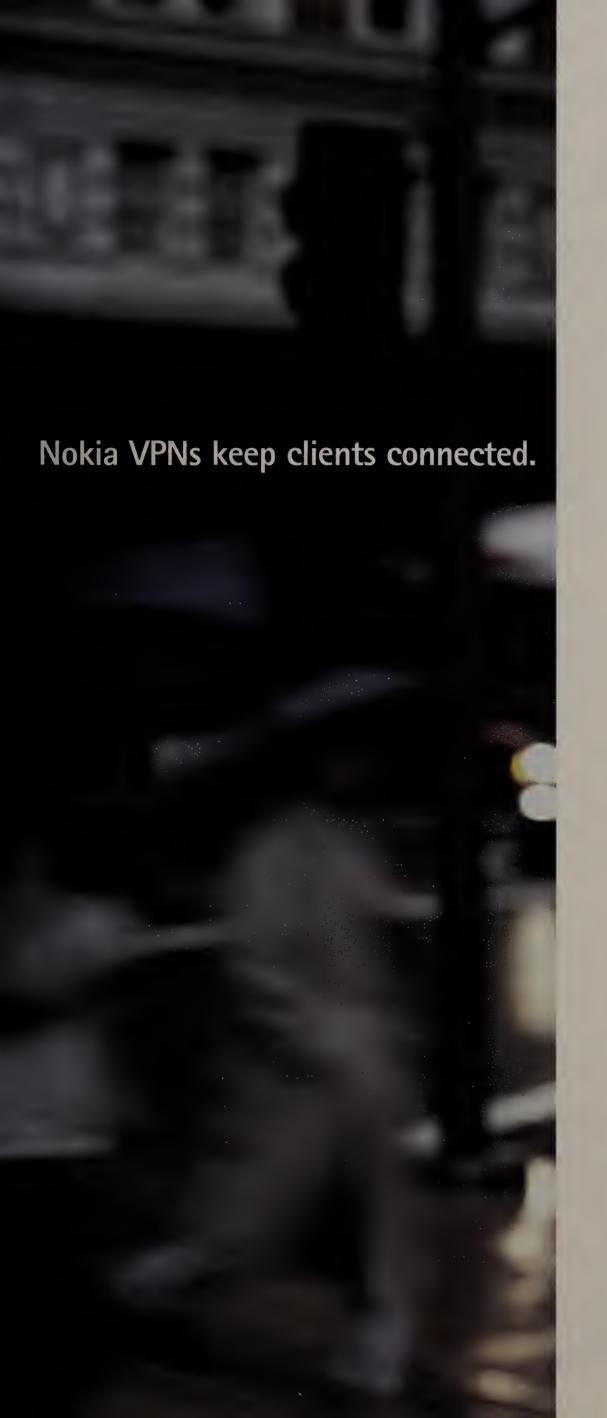
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#### **GET THREE CC5205 VPN GAT**

A three-node cluster of Nokia CC5205 VPN gateways the heaviest traffic environments. Even if one unit goe throughput in excess of 400 MB. For a limited time, additional one AT NO EXTRA COST. Even the associations are suppressed to the second secon



The new CC5205 is designed to meet the highest demands, with a gigE interface and 220 MB throughput per unit.

The CC5200 is used primarily for implementations with 1,000 or more concurrent users. Its ethernet connection allows a throughput of up to 180MB/sec.

\* Offer available from March 1, 2001 to July 31, 2001. One-year, one-unit service contracts are also available, free of charg details. Node reliability achieved in an actual case depends on multiple factors, including but not limited to network desilevel of training and competence of network operations and maintenance personnel and backup support.



# pinions

#### Editorial

#### **E-conference options**

othing draws the attention of vendors faster than praising a competitor. Since writing in this column about WebEx, a company that lets you use the Web to collaborate on everything from PowerPoint presentations to PhotoShop images, I've heard from two companies offering twists on the theme.



Latitude Communications puts an emphasis on security and application integration. Its MeetingPlace e-conferencing system is deployed on customer premises boxes, making it harder for any would-be mischief makers to intrude on or capture sensitive conference sessions.

Like WebEx, Latitude lets you share documents in real time while using the telephone to converse. But be-

cause the system is deployed internally, enterprise customers can integrate it with their messaging systems and let users schedule meetings via group calendars and even join meetings from within Outlook or Notes — pretty slick.

Customers who aren't interested in controlling the system (a plus or a minus, depending on your perspective) can use the company's newly announced managed and hosted offerings. With the former, you still house the gear, but Latitude assumes its care. With the latter, the company installs gear dedicated to you in its data center, preserving security benefits.

For customers using less than 50,000 minutes per month, the managed service costs 15 to 20 cents per minute while the hosted version is about 30 cents per minute. Buying a system outright costs \$2,600 per Conference Server license, which supports 960 users.

One thing that is missing is the ability to support streaming, which is critical for corporate training applications. Which leads us to the other vendor that called: WorldStream.

WorldStream offers a range of e-conference offerings like Latitude and WebEx, but prides itself on its streaming capabilities. The company says that, through a partnership with an Internet content distribution company, it can support up to 10,000 users watching live or ondemand video.

Another interesting twist with WorldStream — if you use the company's products to host a streaming video or audio event, you can brand the page instead of having to promote the WorldStream name — a nice touch.

Regardless of product, the main point is that all these systems make it increasingly feasible to do away with some T&E expenses. They're worth a look.

— John Dix Editor in chief jdix@nww.com ↓ Message Queue

#### SPECIAL DELIVERY

Regarding "Which standard is better for teleworkers: Wi-Fi or HomeRF?" (www.nwfusion.com, DocFinder: 4122):

As I see it, Wayne Caswell is trying to combat the Wireless Fidelity (Wi-Fi) standard by arguing that HomeRF is technologically more advanced. Even if this is true, it's really irrelevant. History has shown countless times that it doesn't matter whether your technology is superior to others. In the end, it's about who delivers it first, fastest and knows how to market it well. And here's where Wi-Fi is clearly way ahead of HomeRF If HomeRF had delivered their technology sooner with actual working products, then this would've been a much more interesting debate.

L.J. Pit Chief software architect Moonshake Technologies Amsterdam

#### SPAM MUSINGS

In his "Backspin" column "The right to write" (www.nwfusion.com, DocFinder: 4123), Mark Gibbs states, "If you purehased a list that I double opted into, and I agreed that the list owner could sell my name to other companies, that's fine." I receive a lot of spam from companies that claim they got my address from an opt list, and I've encountered two problems. First, often I don't remember intentionally opting into the list, and in many cases the company doesn't precisely identify which opt list they are supposedly using. I suspect they are just claiming affiliation with an opt list to beat the system. Second, the unsubscribe at the end of the e-mail is only for that company, not the entire opt list. Thus, it's difficult to identify, find and opt out of those lists once you're in

Marty Gizzi Fredericksburg, Va.

Regarding Mark Gibbs' "Backspin" column "Relentless illogical spam" (www.nwfusion.com, DocFinder: 4124):

Spam is just like TV or radio: Each of us controls

the channel selector and the on-off switch. I control spam with a delete key or by notifying a persistent sender if I want off their mailing list — just like I've done for years with snail mail.

If I continue to receive unsolicited mailings, the gloves come off. I have a letter that describes my fees for time spent dealing with unsolicited marketing after I've requested it to stop. This action has court precedence and was upheld on appeal. It instantly stopped *The Rocky Mountain News* from spamming me and generated a formal apology from its editor.

Gibbs' point about the ease of e-mail deletion is the simplest handling procedure. Most solicitors have sites to remove your name from their lists.

Art Robbins Senior/founding partner Quantum Partnership Aurora, Colo.

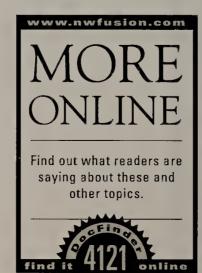
Rob Cosgrove's defense of spam is self-serving. It takes electricity to produce, deliver, reject and delete his spam, and that requires consumption of precious fossil fuels in most cases. Any spammer can justify his actions by finding some reason why the rules of normal social discourse do not apply to him. Cosgrove also obviously does not have to personally delete a few hundred pieces of e-junk per day from his inbox. It takes time, which is everyone's most valuable commodity, to purge e-trash. Cosgrove can rest assured that I will never willingly be a consumer of his company's products or services, and shall actively encourage all of my colleagues to be of like mind.

George Nezlek Chicago

Since, in Rob Cosgrove's opinion, spam is OK, it's just as reasonable for Mark Gibbs' readers to personally share their opinions on the subject with him. Publish Cosgrove's e-mail address. I'm sure he won't mind (he's well-adjusted, after all), and may be enlightened by the point of view offered by those who are affected by what he so easily justifies. I anxiously await this opportunity.

Gord Belsey Manager, technical services Amador Business Computers Edmonton, Alberta, Canada

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.





#### The Internet . Frances Cairncross

#### THE RISE OF 'CISCO GOVERNMENT'

hat, a century from now, will seem the most important effect of the Internet? The answer, surely, will be its impact on services. The Internet will transform their efficiency and reliability in the way that, in the early 20th century, electricity and mass production transformed manufacturing. The biggest single producer of services, almost everywhere, is government. So the Internet's greatest impact eventually could be on what we now regard as public services.

You can already see this happening, as governments around the world begin to deliver online services to their "customers." Online, you can acquire a liquor license in Australia's New South Wales and a marriage license in Douglas County, Nev. One of the pioneers of online tax collection, the Chilean Internal Taxation Service, has found big improvements in transaction time and accuracy. Purchasing, too, is moving online. Massachusetts has a venture called Emall that claims to cut purchasing costs by 60% to 80%. Western Australia's Government Electronic Market expects to cut the average cost of making simple purchases from between

\$75 and \$100 to less than \$10 per transaction.

However, when companies start to integrate the Internet into their operations, they are often surprised to find that it is not just a matter of installing a new delivery channel. To get the most from the technology, they need to adopt new ways of doing things and new internal organization. Erik Brynjolfsson of MIT's Sloan School of Management has shown that the companies that gain the most from adopting information technology are those with relatively flat hierarchies and flexible and highly educated staff who are good at taking responsibility and working in teams.

Could it be that what holds for companies also holds for government? Will the Internet surreptitiously create pressures for restructuring and for breaking down old barriers between departments and agencies? In Britain, Tony Blair's government thinks so. It has a top-level program to encourage what it calls "joined-up thinking" and sees the Internet as a way to link knowledge and policy programs in different departments. Already it is running into the very problems that companies face when they try to present a single face to

the customer: turf wars between departments and a reluctance to share knowledge.

In time, though, the Internet will help transform the nature of government, turning it from producer into regulator. Just as Cisco organizes its production largely through factories that it doesn't own, governments will provide public services through a variety of for-profit and not-for-profit suppliers, some domestic and some based abroad. Like Cisco, governments will set quality standards and will encourage competitive bidding. They will use the 'Net to monitor and analyze the output of suppliers, which may provide education, policing, tax collection or defense. Government's role will be strategic and regulatory. The result will be more-efficient public services that concentrate on meeting the consumer's needs. You might call it "Cisco government."

Cairncross is management editor of The Economist and author of The Death of Distance: How the Communications Revolution Will Change Our Lives, a new edition of which is now available from Harvard Business School Press.

#### Above the Cloud . James Kobielus

#### SIMPLIFICATION, NOT XML, IS THE KEY TO PKI SUCCESS

n this mean season, it's sad to see our fondest e-business visions become stale jokes.

Take public-key infrastructure (PKI) technologies. More specifically, let's take another look at yesteryear's promise of interoperable, multivendor PKIs as a universal trust and security environment for e-business. Sure, we have PKI standards galore, and many innovative PKI products and ser-

vices. So why has the mass market for PKI-enabled products never taken off?



PKI's shortcomings are no secret to anyone who has tried to make it all work together. Chief among them is its complexity: PKI must be greatly simplified to achieve any degree of universality. In particular, traditional PKI

requires too much application preconfiguration at browsers, e-mail clients and other desktop applications.

To its credit, the PKI industry is working to simplify its technical approaches. PKI vendors are developing new architectures that take much of the processing load off the overburdened client and delegate it back to the server-side infrastructure. Chief among these are the XML Key Management Specification (XKMS), and the equally XML-based Security Assertions Markup Language (SAML), a permission management infrastructure (PMI) standard being developed under the auspices of the Organization for the Advancement of Structured Information Standards (OASIS). Industry standards groups are also debating the merits of proposed PMI interoperability specifications such as the XML Access Control Markup Language (XACML).

Unfortunately, these budding, young security stan-

dards, in spite of all their promise, may not make e-business trust infrastructures less complex to deploy and manage. If we're not careful, we'll simply be exchanging one complex trust environment (traditional PKI and PMI) for another (XML-enabled PKI and PMI) at the client and server levels.

At the client level, XKMS — the most important of the emerging but still unfinished standards — will let applications delegate the retrieval, parsing and validation of X.509 digital certificates to trusted servers, thereby reducing the PKI-enabled business logic that must be installed on clients. However, XKMS will require retrofitting clients to support new standards such as Simple

Object Access Protocol (SOAP) and Web Services Description Language.

Adding to the potential for complexity, XKMS and SAML, if implemented together, will expand the range of trust servers that must interoperate. XKMS defines two principal new infrastructure components, Registration Servers and Assertion Servers, which support all traditional PKI functions but do so through exchange of standardized XML-based messages. Likewise, the SAML framework will enable standards-based authentication and authorization through XML messaging among such new infrastructure components as Authentication, Session and Attribute Authorities.

Ratcheting the complexities up further, the proposed XML standards won't necessarily blow traditional PKI and PMI architectures out of the water. It's very likely that the XKMS and SAML worlds will need to interoper-



ate with legacy PKI and PMI infrastructures through adapters and gateways for such purposes as registering and validating X.509 public-key certificates.

The new XML-based security standards are on the right track. It's a given that XML-based application-to-application messaging and digitally signed trust assertions will be important features of next-generation PKI and PMI environments. But the standards development efforts among XKMS, SAML and other leading initiatives have not been well-coordinated. The industry should, above all else, consolidate development of XML PKI and PMI standards under a single organizational umbrella, rather than continue to trian-

gulate among the Internet Engineering Task Force, World Wide Web Consortium and OASIS. We also need stable, open source reference implementations of these next-generation PKI and PMI standards to jumpstart widespread implementation and interoperability.

Most important, we need radical simplicity of PKI and PMI configuration at the client level. This stuff has to be cheap and easy to set up and manage on the desktop, laptop and palmtop. Otherwise, it won't succeed in the mass market. We've seen too many 1990s visions stumble on the doorstep to the new millennium.

Kobielus is an analyst with The Burton Group, an IT advisory service that provides in-depth technology analysis for network planners. He can be reached at (703) 924-6224 or jkobielus@tbg.com. The opinions expressed are bis own.

#### Opinions

#### SEEKING NDS SUPPORT

In an event more rare than Haley's comet, the industry has overwhelmingly agreed on one fact: that directory services arc vital to the growth of a network. This being the case, I am constantly amazed that almost no vendors are integrating their products with Novel! Directory Services.

NDS is by far the most prevalent, powerful and scalable directory service today. Yet every vendor seems to want to just "sit tight" and wait for Microsoft's Active Directory Service to be fully implemented and then only support ADS. How many horror stories have to be written about botched implementations of ADS before vendors start looking at supporting other directory services? And what about the fact that ADS only runs on and supports Windows 2000 systems, while NDS can run on multiple platforms and support multiple clients?

Recently my company wanted to add some network-attached storage (NAS) devices to our network. None of the NAS devices on the market at the time supported NDS, so we had the extra administrative overhead of adding the users to the NAS security model. Although this was not difficult, it is one more disparaged system that must be managed separately. Approximately six months after deploying the NAS devices, I read a review of a new NAS device that was touted as supporting NDS. I visited the vendor's Web site and went to the section that discusses its support of NDS and ADS.

After going through the entire site and reading every PDF document, I found plenty on how its products work with ADS but nothing on NDS. Then, in a recent issue of an industry magazine, I saw a print ad for this same NAS device. The print ad specifically states it supports ADS but says nothing of NDS. I decided to call the maker of the NAS device and ask about its NDS integration. I spoke with a salesperson who had no idea how it integrated with NDS and had to get a technician on the phone. The technician informed me that the device fully integrates with NDS and becomes a manageable object in my tree.

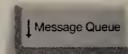
This was wonderful to hear, but my joy soon turned to frustration as I asked them why they have no information on their Web site about their level of NDS integration and nothing at all in their print ads. Of course they have no say in such matters in the company, so I told them they should tell the powers that be that they should promote their NDS integration more prominently.

Industry pundits love nothing more than to talk about the demise of Novell, even though Novell dominates the directory service market, where Microsoft has yet to make a dent in its market share. I have always felt that these stories of demise have kept vendors from supporting NDS, because if the pundits say it will happen, then it must be true, right?

I hope this is the beginning of a trend of more serious support for NDS.

Jayson Habn Vice president of IT and CIO Merrimac Industries West Caldwell, N.J.

CISCO WILL SURVIVE
Regarding Kevin Tolly's column "Will Cisco suffer
Yahoo's fate?" (www.nwfusion.com, DocFinder:



4128): Despite the company's bad moves, they've still got an army of newly hatched Cisco Certified Network Associates and Cisco Certified Network Professionals, all of whom are working to become Cisco

Certified Internetwork Experts.

Ever try to work on another vendor's products? For example, take a Lucent AC120: It has a cruddy code, no upgrades, its Web site is a black hole and good luck finding a technician that understands the stuff.

Now go to Cisco's site and pick out an obscure product the company stopped selling in 1997. All the documents are there. Everything — example configurations, what works with what, and a software library back to the very beginning. And when I call tech support, the worst I've ever had them do is put me on hold for a few minutes while they found someone to answer my obscure question.

I'd say Cisco's position is more closely related to Novell in 1993 than Yahoo this year, and they're much more likely to understand what is going on and make the needed changes than the onedimensional Novell.

> Neal Raubauser IP network designer Americanrelay.com Omaba, Neb.

#### HEAVY BURDEN

The article "Tool sizes up Exchange migration costs (www.nwfusion.com, DocFinder: 4129) makes light of the fact that you must already have Active Directory and Windows 2000 in place before upgrading to Exchange 2000.

Implementing Active Directory and Win 2000 is the expensive and resource-intensive part of implementing Exchange 2000, and it should be included in the complete analysis. It is an arduous task.

Tangi Hodulik Battle Creek, Mich.

#### FORD CLARIFIES

One correction to your article "Companies warming up to PKI" (www.nwfusion.com, DocFinder: 4130): Ford has chosen to encrypt all Web-based transactions with our business partners, not all data as mentioned. Internal data typically would not be encrypted unless sensitive in nature.

Paul Rathbun eSecurity specialist Ford Motor Co. Dearborn, Mich.

#### Truncated trunking

Regarding your review "The trouble with trunking" (www.nwfusion.com, DocFinder: 4131):

My company recently conducted what your article calls trunking tests on the Cisco Catalyst switch using Spirent Communications gear, as well as failure tests and other various throughput tests.

We even had a Spirent tech assisting us. We are using Enhanced Interior Gateway Routing Protocol, not Open Shortest Path First. I am surprised that you did not inform your readers about

the oddities of Cisco's "trunk." When the flows traveling over port X exceed the capacity of that port, the frames are dropped; they are not sent to another port in the "trunk" that has not yet reached its bandwidth limit. This could be a difficult issue to troubleshoot if you are not aware of it.

Ron Pieronek Houston

#### SABOTAGE QUESTIONS

Regarding "Computer sabotage case back in court" (www.nwfusion.com, DocFinder: 4132):

The government must have recovered the six lines of code they claim Tim Lloyd planted. But if the file system is badly fragmented, how do they even know the six lines really go together? Don't they have backups from, say, the day before the crash? If the suspected code was then found, they could even check the ownership of the file, when it was created and so forth.

Also, usually one logs on as supervisor on NetWare 3.1x servers. If the servers were rigged to trigger on the next logon, it sure would have been embarrassing to have that happen as Lloyd logged on with someone looking over his shoulder. This sounds more like a highly fragmented, unmaintained server to me.

Randall Pastrone Whittier, Calif.

#### **UNCERTAIN GAINS**

Regarding "Deciphering Microsoft's .Net puzzle" (www.nwfusion.com, DocFinder: 4133):

All I see is the introduction of a new model that will require purchasing lots of new Microsoft products and services, thus negating users' return on investment in earlier Microsoft products.

And what does one actually gain from surrendering to this new model compared to the solutions offered by others? Or sticking with what one has already (perhaps improved a bit here and there at strategic points)?

Arthur Bommele Vlissingen, Netherlands

#### E-COMM MISCUES

I enjoyed your article "E-comm's biggest mistakes" (www.nwfusion.com, DocFinder: 4135). As a Canadian customer, I am expected to assume that "\$" means U.S. dollars and that most sites have restricted membership to U.S. citizens unless otherwise mentioned. Often, I feel like I'm in the wrong place.

I also agree that e-mail customer service is lacking. I try communicating via e-mail as opposed to calling, but I end up in a series of never-ending replies, often because my questions are not answered in the first place.

Although I have ordered items requiring shipment very few times, I have had bad experiences. I think the problem points back to a problem with customer service communication. However, I have been much more successful in online auction buying person to person. The replies I receive are accurate and fast. People care.

Guillaume Roy Toronto



#### HOW?

Eric the software engineer
goes on vacation in Scandinavia.

Everyone there does mobile banking
on a wireless phone.

Eric would like to do this back home.

He can't.

the data developer program for wireless application development

PHONES BY ERICSSON 5

#### KNOW-HOW

Eric the software engineer
goes on vacation in Scandinavia.

Everyone there does mobile banking
on a wireless phone.

Eric would like to do this back home.

He enrolls in the

AT&T Wireless Data Developer Program.

He develops a new wireless app.

He sells it to his bank.

Sweet.

Have an idea for a killer wireless app? The AT&T Wireless Data Developer

Program has the tools and technical resources you need to define, develop

and test your idea—plus the marketing expertise to help deploy it.

Whether it's for wireless phones, laptops, PDAs or other hand-held

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AT&T Wireless Data Service across the country. How cool is that?

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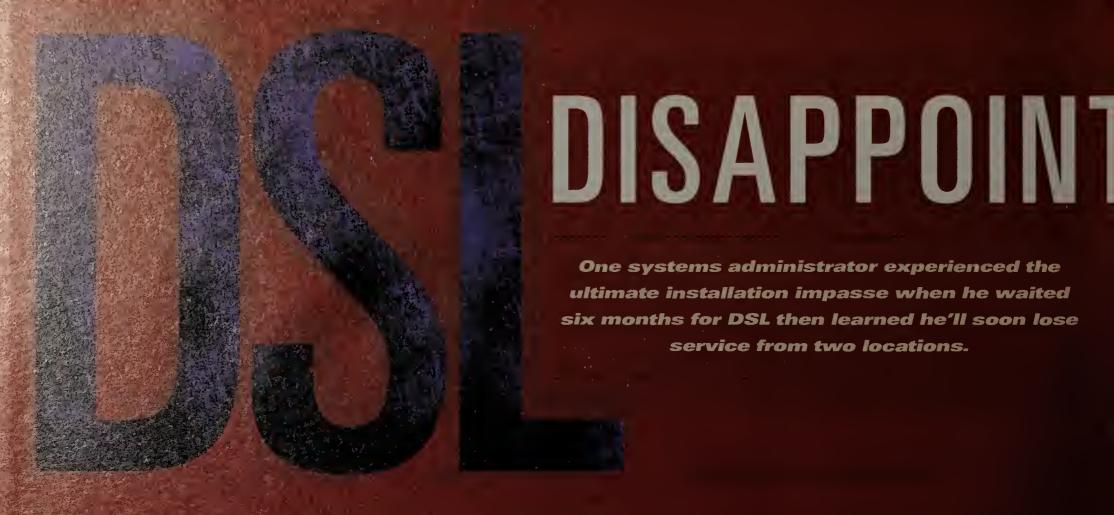


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BY TOM DEFFY

#### TAMES WACK KNEW THERE WOULD BE COMPLICATION.

when it came to setting up a VPN for All-Pak, a Pittsburgh manufacturer of bottles, cans and other containers. But he never imagined quite how complicated it could become.

The systems administrator's story began late last summer. Mong with deploying a VPN to link the firm's nine offices, Wack wanted to use DSL for high-speed access. Working with ISP Verio to order DSL for the three sites that qualified for the service, he was told installation would take six to eight weeks.

If only things had gone as planned. Connecting the Buffalo, N.Y., office took more than three months, while hooking up the Columbus, Ohio, office took close to six months. And even now, the situation isn't completely resolved. The news that DSL wholesaler NorthPoint Communications is shutting down has forced Wack to scramble to keep the Buffalo and Philadelphia offices online.

Looking back on the experience, Wack says, "It was really, really upsetting. I've never been treated this way by any organization. I was shocked that a company of this size would seemingly blow me off."

Responding to those complaints, Verio spokesman Greg Falconer says, "Having three DSL lines they probably got a better sense of the frustrations sometimes involved in installing this service. These are unfortunate circumstances."

Wack is not alone. Web sites such as DSLReports. com are full of gripes about broken promises and

frustrations when it comes to DSL service.

To some extent, the broadband deployment problem is systemic. DSL service is notoriously unpredictable in part because it is provided over copper phone lines that were never intended to be used for such high-speed service. As a result, the service is only available to customers within three miles of the carrier's central office.

"It's tough to totally understand the wires in the ground in any given city until we get the phone company to help us find some wires that work," says Falconer. "All-Pak was subject to those challenges."

Getting DSL service also typically involves three separate companies: ISPs such as Verio, DSL whole-salers and local phone companies. Communication breakdowns between any of them can result in night-mares for customers.

It appears to be a combination of those factors that hamstrung Wack's attempts to connect his

company's offices.

All-Pak's biggest problems happened at its suburban Columbus office. Wack says he was originally told that he could get 384K bit/sec service there. But when the local carrier took a look at the wires, the service offering was downgraded to 144K bit/sec ISDN DSL. Then came a series of order cancellations that appeared to be the result of miscommunication between Verio and Covad Communications, the DSL wholesaler Verio uses in Columbus.

Wack says confusion within Verio about the speed of service delayed the first installation date until December. Then, on five or six occasions in December, January and February, installation dates were scheduled and then broken. The problem appeared to be the same paperwork snafu; the cancellation of the higher-speed service somehow led Covad to believe that all service had been canceled.

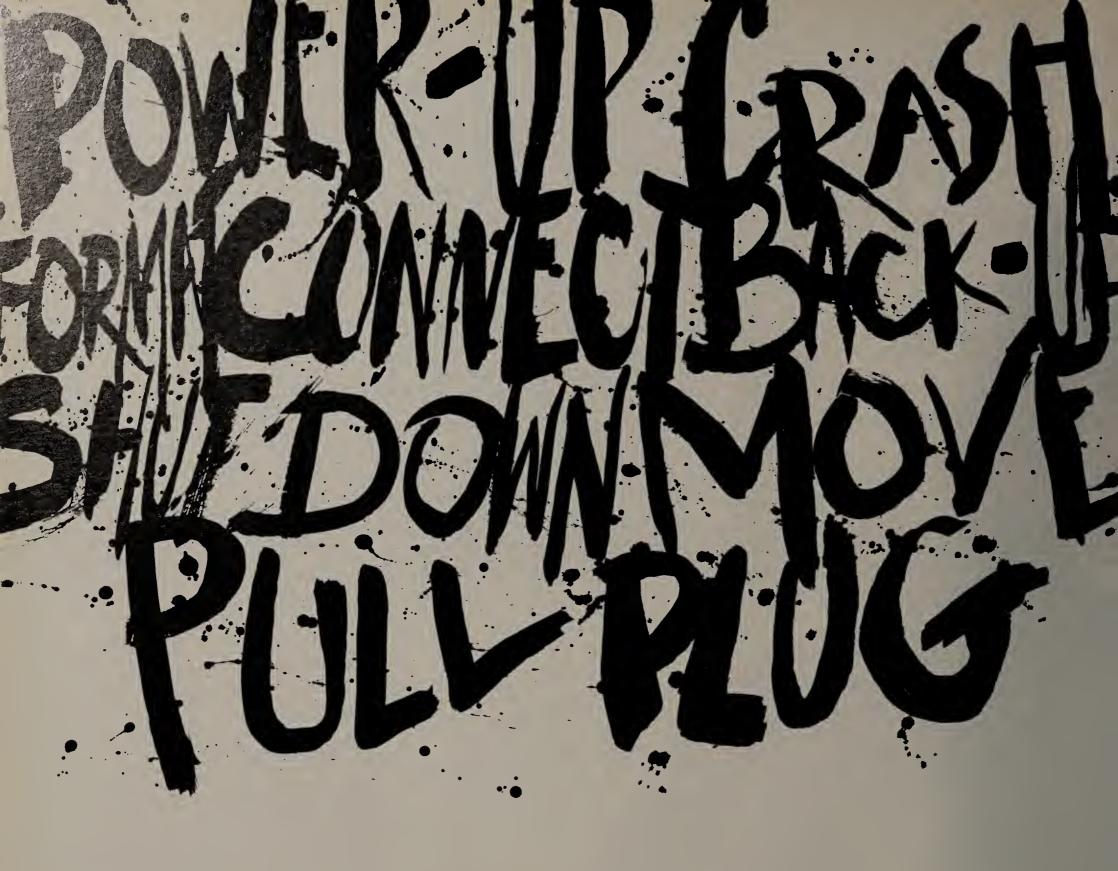
A Covad spokesman says All-Pak's service was canceled by Verio. The spokesman said it appeared as though All-Pak had requested the cancella-

Covad to All-Pak

We regret to inform you that the

to inform you that the Covad DSL installation that was originally scheduled for 2/20/2001 between 12:00 p.m. and 5:00 p.m. has been postponed due to loop delivery problem.







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# CONCERNS SUNGENERAL SAND SUNGENERAL STATES AND SUNGENERAL STATES A

Other key findings: storage
needs skyrocket,
mobile devices
become mainstream, e-commerce spending
expected to rise.

BY SUZANNE GASPAR

ecurity is what keeps you up at night. Security is a top concern when you're implementing new technologies such as wireless or storage-area networks. And security is a key consideration in outsourcing decisions.

In fact, security worries pervade just about every aspect of your job, according to the results of this year's Network World 500, our annual survey of 500 network executives.

"Systems can come down....You need to watch out for e-mail viruses, and that was never an issue with the postal service," says Greg Youst, IT manager for e-commerce at educational loan provider Sallie Mae in Reston, Va. Sallie Mae has an online service that lets students and schools apply for and manage loans over the Internet.

Youst says security is on his mind all day. "If people believe I can't protect their information, why do business with me? If the site is down and we can't provide services, that's lost time and money," he says. Security is also part of the process when designing new systems and applications, he says.

As e-business becomes more important to a company's bottom line, security also rises to a new level of concern. The survey shows that 28% of transactions at traditional businesses — not dot-coms — are now conducted electronically, and one in four businesses say at least half of their transactions are conducted electronically. Youst says Sallie Mae is doing more online because customers want to do more online.

At the same time, two-thirds of respondents say they worry that their e-business activities are vulnerable to security breaches. And 87% say it's getting harder to ensure secure applications. For Youst, that means using VPNs, digital certificates and 128-bit encryption to secure connections and private information.

Other e-commerce-related results:

- E-business spending averaged \$58 million per company last year. That figure is expected to decline to \$52.9 million this year, but rebound to \$68.4 million next year.
- The need to quickly increase e-commerce is driving some companies to outsourcers, but 72% of respon-

#### Night terrors

What keeps network professionals up at night? Security and hackers were the top answers, according to the survey.

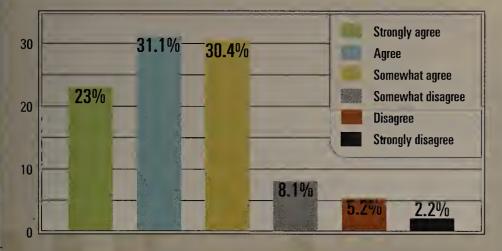
Security/hackers	24.4%
Network availability/uptime	20.0%
Reliability	11.6%
Availability/having enough bandwidth	5.2%
Keeping up with rapidly changing technology	4.8%
Too much work/lack of time	4.8%
Finding/training qualified technical personne	4.0% I
Equipment failure	3.6%
Money/resources	2.8%
Users/customer activity	2.4%
Loss of data	2.0%
Management/measurement of network performance	2.0%

dents say they host e-business applications in-house and 73% say they plan to continue doing so over the next 12 months.

- The top reasons to go with an outsourcer for e-commerce applications are bandwidth, fast implementation and better performance. The top reasons to keep applications in-house are security, high availability and cost savings.
- More than half of the respondents will have Layer 4 policy-based switches installed in the next two years to treat Web traffic requests more quickly and reliably.
- More than half are using Web server collocation to ease their infrastructure woes. These data centers are viewed by 73% of the survey respondents as physically robust and secure.

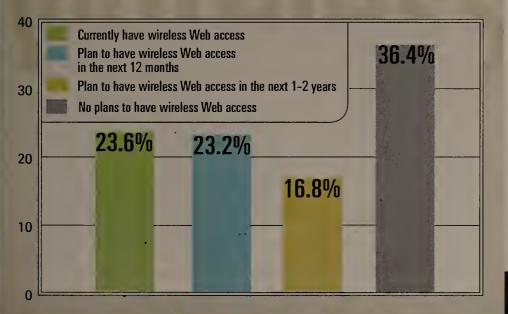
#### Wireless takes center stage

More than half of respondents agreed that wireless technology will be a top priority over the next 12 months.



#### Wireless Web

Nearly two-thirds of companies plan to provide wireless Web access within two years.





#### Outsourcing:

For the 91% of network executives surveyed who are struggling to find qualified technical people, outsourcing is an increasingly viable alternative. According to the survey, nearly half say their level of outsourcing will increase over the next year.

Seventeen percent of the average IT budget goes to outsourcing, and 10% of respondents say they allocated 50% or more of their IT budget to outsourcing.

#### Wireless/mobility

Support for wandering workers is on the increase. Seventy-seven percent of respondents provide remote access to mobile staff, and 74% support telecommuters. Wireless access will be a top priority for 85% of respondents next year, and 44% are using handhelds for corporate network access.

Other mobile results:

- Seventy-eight percent say their companies pay for handheld devices.
- The security of stored and transmitted data is an important or very important feature of handheld devices, according to 84% polled.
- When it comes to wireless, security features are important to 84% of respondents. However, the reliability of the wireless service is important to 93%, quality of service remains key to 90%, and 89% say geographic reach is the most important feature of a wireless service.

#### Storage

Network executives are concerned about security no matter what technology path they chose, and storage is no exception. Ninety-two percent of respondents said security is a key factor in selecting a storage architecture.

- More than half surveyed expect their data needs to grow by more than 75% in two years, driven by the increase in Internet use and e-mail, followed by larger software packages and e-business applications.
- Companies plan to spend an average of \$7.1 million on storage in the next 24 months.
- Forty percent have a SAN, and 28% plan to install a SAN within two years.

It's security that has Jerry Isaacson talking. Isaacson is the data security manager at the Massachusetts Institute of Technology in Cambridge, Mass. He says despite the fact that his SAN is running on its own network, he still worries about security.

As a virtually open system without firewalls, MIT's network is heavily armored in encryption, Kerberos and digital certificates, yet the Internet opens a hole a hacker can try to enter through, Isaacson says. Similar security holes exist with a dial-up or wireless connection, he says.

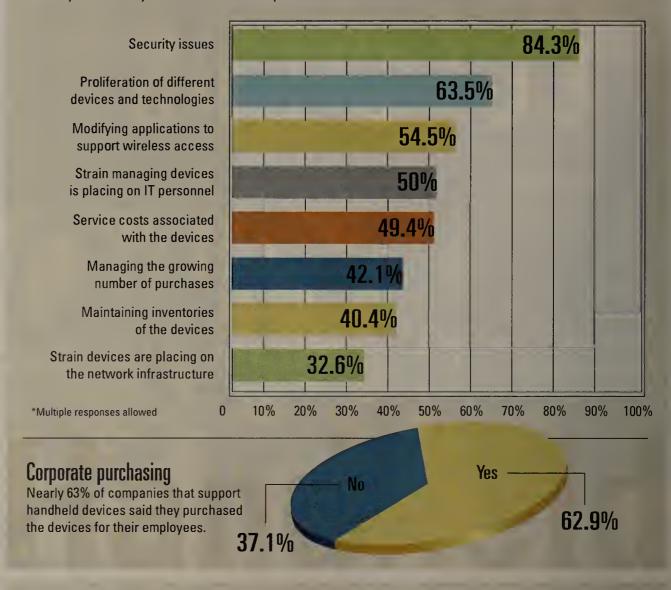
Isaacson says you need to balance security with usability. "We have students and professors who want to do things, and firewalls would restrict them."

He says new e-mail virus threats keep his mind spinning some nights. Despite using Network Associates' antivirus software, IT has identified and contained a virus on one or two campus machines.

Fortunately the school hasn't had an epidemic, but Isaacson says the potential for virus infection

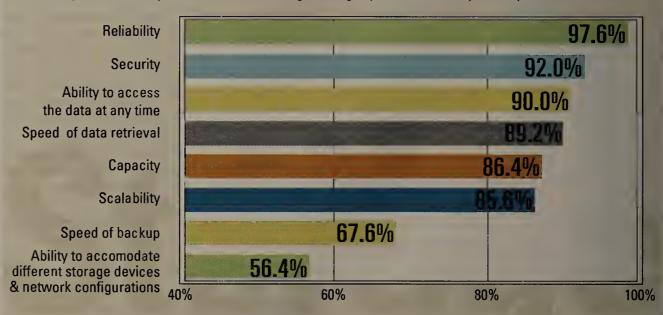
#### Top handheld issues

Security was the major concern of network professionals when it came to handheld devices.\*



#### **Selecting storage architectures**

Reliability is the most important factor in selecting a storage system, followed by security.



is greater today than ever before

"On one Web site I saw 73 virus generation kits, many of which will build the virus for you," he says.

Sallie Mae's Youst agrees: "Up to five years ago, not many people knew where to go to download hacking tools," he says. "Today, people are looking for bragging rights or monetary gains."

At Sallie Mae, security is an integral part of the application development process. "All applications

have flaws....You have to evaluate the risk and decide what's the best way to meet the customer's need,"he says.

The Network World 500 study was conducted by Network World and Research Concepts, LLC. It consisted of telephone surveys at companies with at least 1,000 employees and annual network-related spending of more than \$10 million.



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# Feature

# GROWS UP — AND OUT

#### New 10 Gigabit standard will lead to advanced applications.

BY DAVID NEWMAN

n IEEE task force is nearing completion of a standard to run Ethernet at a blistering 10 gigabits per second, which will mean an Ethernet that's not only 10 times faster, but also more widespread than ever before.

New methods for carrying native
Ethernet frames over metropolitanarea networks (MAN) and WANs will
enable applications that simply
weren't possible before because they
were too expensive to deploy, too bandwidth-con-

Those applications include everything from offsite backup, storage and disaster recovery all the way up to outsourcing your entire network.

But don't go running out to place a down payment on 10G bit/sec Ethernet just yet. The new version may look a lot like previous incarnations, but under the hood there are big differences in distance, cabling, management and network design requirements.

#### What's the same

Because the new specification really is "just Ethernet," your investment in Ethernet gear and in the training of your network staff is protected.

The minimum (64 bytes) and maximum (1,518 bytes) frame lengths haven't changed and the Ethernet frame format also remains in place, so a stream of 10G Ethernet frames will look the same as any other type of Ethernet.

More importantly, 10G Ethernet will carry the same traffic as any other type of Ethernet, including PBX traffic, according to Bruce Tolley, manager of emerging technologies for Cisco's enterprise business unit and vice president of the 10 Gigabit Ethernet Alliance (10GEA).

It's also important to understand what's not in the new specification. That means 10G Ethernet has no built-in facility for quality of service (QoS) or other advanced features. However, there's nothing to prevent network managers from using existing QoS features such as Diff-Serv over 10G bit/sec Ethernet.

#### What's different

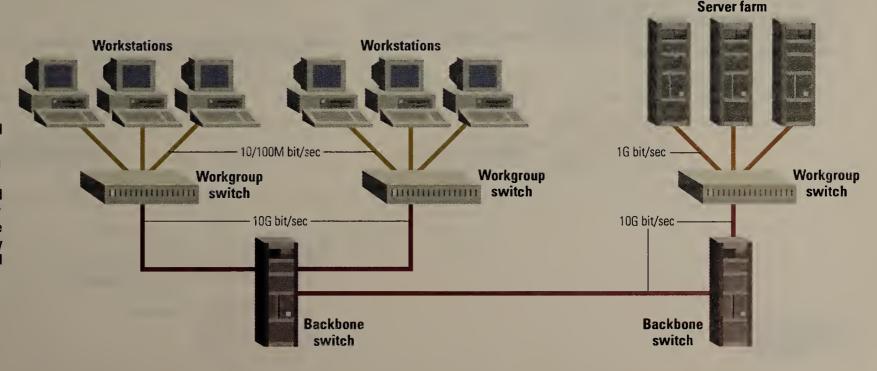
The new version introduces numerous changes at the data-link and physical layers, including new interfaces intended specifically for MAN and WAN use (see graphic, page 96).

Additionally, the new specification will run only in full-duplex mode, while every other type of Ethernet

## Figure 1: 10G bit/sec Ethernet in the LAN

strained or both.

Bandwidth aggregation will be one of the biggest benefits of the forthcoming 10G bit/sec Ethernet spec. Bigger backbone pipes will help relieve congestion for workgroup switches, where Gigabit Ethernet uplinks may already be overloaded, and for server farms, where 1G bit/sec network interface cards are already in widespread use.



allows for half-duplex operation.

Another change that's probably welcome is that 802.3ae does not support autonegotiation, which was intended to be a convenience but in practice has proven to be a major source of connectivity headaches. The elimination of autonegotiation is likely to simplify troubleshooting.

The biggest difference is at the physical layer. Notably, the new standard will include two PHY (physical-layer) types: a LAN PHY that operates at 10G bit/sec and a WAN PHY that runs at 9.58464G bit/sec — the same payload rate as SONET OC-192.

Seamless integration with SONET MANs and WANs was a key design goal for the IEEE task force. Even though pure Ethernet MANs are coming on strong. SONET is king in the telecom world — and it's likely to remain so for years to come. Moving Ethernet frames over SONET networks with a minimum of disruption will help extend Ethernet into MAN and WAN usage.

To deal with the rate mismatch between the LAN and WAN PHYs, the IEEE task force defined a pacing mechanism in the media access control layer that adds enough idle signals to the interframe gap to slow the data rate from 10G to 9.6G bit/sec for transmission by the WAN PHY. Then, a physical-layer component, the WAN interface sublayer (WIS), handles SONET framing, scrambling and error detection.

The WIS is not a complete SONET-compliant interface, but rather a lightweight SONET-like framer aimed at ensuring rate compatibility.

The result is that Ethernet switches equipped with SONET interfaces (or SONET elements such as add/drop multiplexers equipped with 10G Ethernet interfaces) can move Ethernet traffic across SONET MANs and WANs at OC-192 rates. And SONET management systems will be able to identify and monitor Ethernet traffic encoded with SONET framing, an important requirement for service providers.

#### Distance

Of course, for any PHY to be credibly called a MAN or WAN interface, it has to reach farther than the 5-kilometer limit currently defined for Gigabit Ethernet. To deal with the extended-distance require-

#### Timetable

The IEEE 802.3ae task force has overcome virtually all the technical hurdles it's faced thus far, reaching consensus on the last remaining issues in mid-March.

The full 802.3 working group is scheduled to vote on the specification May 21. Assuming it passes muster, the specification will face a second round of voting, called a sponsor ballot, in late 2001. The proposal also requires so-called proof of technical feasibility, which requires testing to demonstrate vendor interoperability.

If the specification clears these hurdles — and supporters say there's every reason to believe it will — it's expected that the IEEE will formally publish the 10G Ethernet specification in March 2002.

Even though a standard is almost a year away, network managers are likely to see products well before the specification's final adoption. "We've seen from history that products tend to ship between the working group and sponsor ballots," says Tony Lee, senior marketing director at Extreme Networks and president of the 10 Gigabit Ethernet Alliance.

In fact, Enterasys announced late last month the industry's first 10G Ethernet product, a 12-port Ethernet box with a single 10G-bit/sec uplink.

ments, the IEEE task force defined four new physicalmedia-dependent sublayers: three serial Physical Medium Dependents operating at 850, 1,310 and 1,550 nanometers, and a wide wavelength division multiplexing (WWDM, sometimes called coarse WDM) PMD operating at 1,310 nanometers. The 1,550-nanometer interface will operate at distances of up to almost 40 kilometers.

Serial PMDs do just what the name implies: They send signals in series, one after another.

With any type of WDM, a transmitting interface sends light over multiple wavelengths in parallel, and a receiving interface reassembles the wavelengths into a whole.

With all the new variations in PHY types, it can be confusing to keep track of all the possible interfaces. The IEEE task force settled on a common nomenclature to make sense of all the new PHY flavors.

The new PMDs are a major departure from earlier versions of Ethernet, in variety and in type. Fast Ethernet borrowed its physical layer encoding from FDDI. Gigabit Ethernet borrowed its encoding from Fibre Channel. In contrast, the 10 Gigabit Ethernet PMDs are all new.

Line encoding is, quite literally, a low-level function that will only affect network managers concerned with troubleshooting physical layer errors. Still, it's incumbent on network managers to verify that cable test gear natively supports 10G Ethernet encoding methods or can be upgraded.

#### Management issues

If looking after low-level diagnostics is only a minor issue, managing 10G Ethernet's sheer data volume will be a major concern indeed. Network management systems such as element managers, Remote Monitoring (RMON) probes and protocol analyzers already have enough trouble keeping up with current data levels. For these types of devices, tracking 10 times more traffic will be like drinking from a fire hose.

To keep pace with the volume of 10G Ethernet traffic, 64-bit counters will be a must for management and monitoring systems. The 32-bit counters in many currently deployed tools simply can't count high enough. Once a 32-bit counter reaches its limit, it will simply "wrap," or revert to 0 and begin counting again — and the counts it produces will be meaningless.

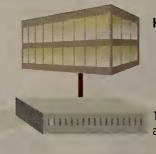
Consider a few simple statistics: Given a flow of 256-byte packets (which is roughly the mean packet See 10Gig, page 96

#### Figure 2: 10G bit/sec Ethernet in the MAN

Today, a company that wants to connect multiple branch offices would lease capacity on a service provider's SONET ring and would have to convert Ethernet traffic using a switch/router equipped with Ethernet and packet-over-SONET interfaces. The traffic would be placed on the SONET ring by add/drop multiplexers.

With 10G bit/sec Ethernet, devices can natively transport Ethernet frames end to end over the SONET infrastructure.

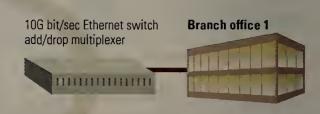




Headquarters office

10G bit/sec Ethernet switch add/drop multiplexer

OC-192 SONET ring





add/drop multiplexer

Data center

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#### 19Gig

Continued from page 94

length for Internet traffic) running at line rate, it will take just 3.7 seconds to wrap a 32-bit byte counter and less than 16 minutes to wrap a packet counter. Clearly, devices equipped with 32-bit counters will be woefully inadequate for long-term monitoring or capacity planning.

However, it may be possible to get more life out of existing tools equipped with 32-bit counters, as long as they support sampling.

Sampling is best-suited for medium- and long-term monitoring. For example, an RMON probe (or RMON agent embedded in a switch) might use sampling to tances of up to 40 kilometers. It's the 1,510-nanometer flavor of 10G Ethernet that's expected to drive Ethernet growth in the MAN and WAN.

#### LAN applications

In LAN and campus settings, "the first thing people are going to do with 10G Ethernet is bandwidth aggregation," says Mark Fishburn, vice president of marketing for Spirent Communications and marketing director for the 10GEA. For sites where Gigabit Ethernet doesn't furnish enough bandwidth, 10G Ethernet is an ideal replacement.

A typical candidate for migration to 10G Ethernet might be a switched backbone using Gigabit Ethernet today. Here, workgroup switches with 10M or

router backplanes have the capacity to accommodate a tenfold traffic increase.

Another application in which 10G Ethernet can ease congestion is in aggregating traffic to and from server farms.

Cisco's Tolley says he expects clusters of computers to be linked using 10G Ethernet, either as an interswitch connection or as a link to storage-area networks.

While it's unlikely any single server will fill a 10G bit/sec pipe any time soon, today there are servers that can move traffic in the 1G bit/sec range. Obviously, a switch/router that tops out at just 1G bit/sec won't be much help in handling traffic from multiple servers — but a switch that provides one or more 10G bit/sec pathways to the server farm may be just the ticket.

#### 10G bit/sec Ethernet interface options

PHY type	Description	Fiber type	Maximum distance (meters)
10GBase-SR	850-nm serial LAN	Multimode	65
10GBase-LX4	1,310-nm WWDM LAN	Multimode	300
10GBase-LR	1,310-nm serial LAN	Single-mode	10,000
10GBase-ER	1,550-nm serial LAN	Single-mode	40,000
10GBase-SW	850-nm serial WAN	Multimode	65
10GBase-LW	1,310-nm serial WAN	Single-mode	10,000
10GBase-EW	1,550-nm serial WAN	Singel-mode	40,000

nm — nanometer, WWDM — wide wave division multiplexing

report on port statistics. However, sampling is not appropriate for short-term measurements such as those a protocol analyzer might take. In this case, the ability to monitor and/or capture all traffic in real time is essential.

#### Cabling

Cabling is a major issue in migrating to any new PHY technology. Network architects will need to determine whether existing cable plants are capable of carrying 10G Ethernet traffic and assess distance limits imposed by the new specification.

Copper is out. Unlike Gigabit Ethernet, which includes a 1000Base-T specification for copper cabling, 10G Ethernet will run only over fiber. This isn't expected to be a showstopper because fiber already represents the majority of Gigabit Ethernet interfaces sold.

But which type of fiber to use?

- On the LAN, multimode is the most likely choice.
- For existing FDD1 and Gigabit Ethernet installations, 50- or 62.5-micron multimode is the most commonly installed type of fiber.
- Of the four new PMDs, the 850- and 1,310nanometer versions will support existing multimode cable plants.
- Interfaces with 850-nanometer lasers are intended for use in very short reach applications, such as links between switches or supercomputers.
- For general-purpose campus connectivity, interfaces with 1,310-nanometer lasers, which light up fiber cabling for up to 300 meters, are likely to be the norm.
- For distances above 300 meters, single-mode fiber will be a must. Interfaces equipped with 1,310-nanometer lasers and single-mode fiber will support distances of up to 10 kilometers (which is twice the limit currently supported in Gigabit Ethernet).
- And if 10 kilometers isn't long enough, interfaces equipped with 1,510-nanometer lasers will reach dis-

100M bit/sec interfaces might employ one or more Gigabit Ethernet links to connect to a backbone device (see Figure 1, page 93).

The problem here is that the edges can easily overload the backbone. Many workgroup switches offer as many as 48 100M bit/sec ports, which in the aggregate represents far more bandwidth than a single Gigabit Ethernet link can handle.

Link aggregation (also known as trunking or inverse multiplexing) offers more bandwidth, but it's only a partial remedy.

True, switches that support link aggregation can combine up to eight physical ports to create a bigger virtual pipe. But recent tests of link aggregation suggest this feature can have a severe impact on performance, especially when features such as failover or quality-of-service enforcement are enabled (see www.nwfusioncom, DocFinder: 4221).

Even if a device were to support link aggregation with no performance degradation, the technique still would require "burning" multiple interfaces to work. That process is expensive in terms of the capital cost of the interfaces, real estate they consume (especially in cramped wiring closets), cost of buying and pulling multiple runs of fiber cabling, and management resources (human and machine) required to monitor the network.

Removing the bandwidth bottleneck with 10G Ethernet is easy. All that's required to migrate is simply swapping interfaces to achieve a tenfold bandwidth boost. One caveat: Make sure switch or

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#### MAN, WAN applications

The place where 10G Ethernet is expected to bring the greatest change is in MANs and WANs. The new specification won't just extend the reach of existing networks; it's also expected to drive entirely new applications that aren't possible with today's bandwidth constraints.

"The ability to get a 10G Ethernet connection [from a service provider] makes the idea of outsourcing your IT infrastructure a lot more compelling, because the connection to that provider is no longer a bottleneck," says Marshall Eisenberg, director of marketing at Foundry Networks.

Tony Lee, president of the 10GEA and senior marketing director at Extreme Networks, expects MAN service providers to be among the first to roll out MAN/WAN versions of 10G Ethernet interfaces. There are compelling economic reasons for doing so: 10G Ethernet interfaces will cost far less than SONET versions. Lee expects incumbent carriers "to leverage SONET investment by running new 10G Ethernet services directly over existing infrastructure."

For example, consider a typical MAN setting today (see Figure 2, page 94). To connect multiple offices, a financial services firm leases capacity on a service provider's SONET ring.

Ethernet traffic from each location must be converted for SONET transmission by a switch/router equipped with both Ethernet and packet-over-SONET interfaces. Then it's placed directly onto the SONET ring by add-drop multiplexers.

With 10G Ethernet, the picture is considerably simpler. Here, devices can natively transport Ethernet frames from end to end — even using the existing SONET infrastructure because the new specification's WAN PHYs are rate-compatible with SONET.

WAN connections are also possible because the WAN PHY's framing lets Ethernet traffic be placed directly onto long-haul SONET links.

Using the WAN PHY and leasing dark fiber from service providers, companies can enable the technology to support new uses, such as remote hosting, offsite storage and backup, and disaster recovery.

While the WAN PHY makes the most sense for existing MANs and WANs, Extreme's Lee says it makes the most sense to adopt the LAN PHY for new installations. Lee points out that both types — LAN and WAN — run over all four PMDs.

Another big advantage of end-to-end Ethernet service is that it "will allow service providers to provision services in minutes or hours," Lee says.

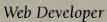
Newman is president of Network Test, an independent benchmarking and network design consultancy in Westlake Village, Calif. He can be reached at dnewman@networktest.com. Today's IT challenges can make you feel like your information, your applications, and even you need to be in multiple places at the same time. The answer is Marimba — systems management solutions built by people who understand e-business. Our change management software delivers applications and content to servers, desktops, mobile systems, and Internet devices. Increasing efficiency, reducing costs. And our performance management software lets you monitor performance and availability of e-business services in real-time. Increasing reliability, decreasing downtime. Be everywhere. Go to www.marimba.com.

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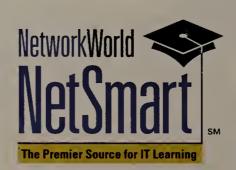
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# The long arm of the LAN

Extend the reach of your workstation management with mobile administration software.

BY TRAVIS BERKLEY,
NETWORK WORLD GLOBAL TEST ALLIANCE

Afaria, Swan International's Vision64, Callisto Software's Orbiter, Synchrologic's iMobile Suite and Mobile Automation's Mobile Automation 2000.

Because each company has a different vision of what you need to get the job done, we devised a core set of functions as a basis for our comparisons: software deployment, application self-healing, hardware and software inventory, file backup or synchronization, and remote-control capabilities (see "How we did it," page 104).

We gave the Blue Ribbon Award to Mobile Automation 2000 While it

magine if all your computers

were running in remote loca-

track of who has what

machine? Who needs an upgrade?

How do you get the latest copy of

who just left for a convention in

how do you fix the CEO's laptop

board meeting?

your product catalog to the salesman

Poughkeepsie? And, most importantly,

(who is in Walla Walla) after he's delet-

ed Excel (again) and needs to retrieve

last month's sales projections for the

It's OK; you can come out from

underneath your desk now. We tested

five software products that can man-

age your mobile machines: Xcellenet's

tions. Worse, the locations kept changing. How do you keep

We gave the Blue Ribbon Award to Mobile Automation 2000. While it didn't steal the show in all categories, it was a consistent finisher. It has a scalable infrastructure that is easy to install and manage. It also provides a thorough hardware and software inventory, and was easy to generate reports. The remote control features were fully functional. Finally, the back-up of remote files and the ability to schedule restores was good.

If your needs are different, the other contenders may fit your bill perfectly. For example, iMobile Suite has some nice data management features, remote backup and restore functions, and lets handhelds connect via a workstation or directly. Similarly, Afaria offered extra connectivity and support options that might appeal to shops that are heavy on PDAs and light on remote workstations. And Vision64 is great if you need a heavyweight management program but don't have to worry about handhelds. Finally, if you need something that's easy to deploy and use, Orbiter may be your ticket.

#### Δfaria

Xcellenet's Afaria offers the Laptop Server and the Handheld Server. Laptop Server is a bit of a misnomer, as it can manage any machine running any version of Windows. Xcellenet plans to merge these two products in future versions of Afaria. Both servers run on Windows NT or 2000, and communicate with the

remote clients via Microsoft's Internet Information Server (IIS). But in the current release, they cannot run on the same server, and it requires two machines to manage both types of clients. Afaria uses Microsoft SQL Server or Oracle 8 as its database.

Management of Afaria can be accomplished through a Win32 executable or remotely with any current Web browser. Afaria has four distinct classes of functions: Software Management, Inventory Management, Document Management and Session Management. These are organized into "channels," which are used just like channels in Internet Explorer.

The Afaria server is also called a "transmitter." One nice feature of Afaria is the ability to replicate channels to other "target transmitters." Using this, you can place target transmitters in remote locations, saving WAN bandwidth and improving client response times.

There are two grades of client, the Channel Viewer and the Browser Client. The Browser Client uses a browser to connect to the Afaria server via IIS. If you don't use Internet Explorer, you have to manually configure your Multi-purpose Internet Mail Extensions types to hand off the Afaria files to the underlying client. The Channel Viewer has more features and communicates directly with the Afaria server. The Browser Client is much smaller than the Channel Viewer, but if your users don't need to worry about details, the Browser Client offers all of the core functionality. Afaria also has a Java client for Solaris, HP-UX or Linux machines. It works like the Browser Client and can access channels published to Web pages on your servers.

The Channel Manager creates channels that are published and made available to the clients. The Channel Viewer can see them natively, the Browser Client requires HTML to be created on the server. Afaria creates the executables and the necessary HTML snippet, and can even put it in the clipboard for you. But you must put it in the proper page. This depends on how your Web site is set up, and how you want to organize things. In either case, one channel can be configured to run on connection. This is best used for your most important function, such as a virus definition update or your inventory collection.

Software Management lets you distribute and maintain applications and files. Applications can be delivered as an installation package, or as a series of files. If an application breaks, a user can select the application again through either client. The client compares what was in the original distribution to what is currently on the workstation. If any files don't exist or

## **NetResults**

#### Mobile Automation 2000

Score: 4.0
Company: Mobile
Automation, (800) 344-1150,
www.mobileautomation.com
Cost: \$8,995 for the server; \$85
per workstation (PDA is part of
the workstation). Pros: Good
remote control and PDA support;
many hardware inventory options.
Cons: Web reporting, Web

interface need improvement.

#### Orbiter

Score: 3.8 Company: Callisto Software, (630) 682-8200, www.callisto. com Cost: \$5,000 for the base server; \$100 per workstation; \$30 per handheld. Pros: Very easy to use; Supports Palm OS. Cons: Architecture cannot grow.

#### Vision64

Score: 3.78
Company: Swan
International, (847) 2221740, www.vision64.com
Cost: \$100 per workstation
Pros: Swan installs it;
good remote control. Cons:
PDA support in development; not designed for remote file backup.

#### Afaria

Score: 3.6
Company: Xcellenet, (800)
322-3366, www.xcellenet.
com Cost: \$5,000 for both
servers; \$160 per full-service
Windows client; \$50 per
handheld. Pros: Supports
Palm and Win CE. Cons:
Servers currently split; Palm
support needs polish.

#### iMobile Suite

Score: 3.5
Company: Synchrologic, (888) 345-7962, www.
synchrologic.com Cost: \$59
per workstation; \$29 per
handheld Pros: Good Palm
OS support; excellent remote
backup and restore. Cons:
Installation is a chore; console
needs polish; inventory is thin.

	Features 50%	Accuracy 15%	Management 15%	Installation 10%	Documentation 10%	Total score
Mobile Automation	4	4	4	4	4	4.0
Orbiter	3.5	4	4	4.5	4	3.8
Vision64	3.5	4	3.5	5	4	3.78
Afaria	3.5	3.5	3.5	4	4	3.6
iMobile Suite	3.5	3.5	3.5	3	4	3.5

Individual category scores are based on a scale of 1 to 5. Percentages are the weight given each category in determining the total score. Scoring key: 5: Exceptional showing in this category. Defines the standard of excellence; 4: Very good showing. Although there may be room for improvement, this product was much better than average; 3: Average showing in this category. Product was neither especially good nor exceptionally bad; 2: Below average. Lacked some features or lower performance than other products, or than was expected; 1: Considerably subpar, or lacking features being reviewed.

match, Afaria sends only the needed files to repair the distribution. However, Afaria can't detect a corrupt application, which requires user interaction or a scheduled channel execution to fix.

The Inventory Manager captures hardware and software inventory. Once activated, the Afaria client collects information about the workstation. If the laptop is still connected to the network when the client finishes the inventory, it sends the information back to the Afaria server. Otherwise, it waits until the next time a connection occurs. This lets the user disconnect whenever they need to and not wait on the client.

The Session Manager is the most powerful tool, but also the most difficult to master. It is a scripting tool that can perform almost any task. It can look at machine settings, manipulate files and even work with the registry. For example, if a new virus comes around, you could have a Session Manager script send new virus definitions to the client, run a scan, compress the log file and then send it back to the server.

Another nice feature is Afaria's Document Manager, which lets users on the local network "publish" documents to a channel from their desktops and share them with the remote users. Those who create the content can control who receives the documents, as well as whether they can be changed. New versions of documents can also be updated automatically. For example, a publications group that keeps its catalog in PDF can publish the catalog so the mobile salesforce can look for and download the latest version of the catalog.

For remote control, Afaria uses a special version of Symantec's PC-Anywhere. It's basically the same PCAnywhere, but the Afaria version has rules for automatic delivery and installation, and snaps into the administration console directly. If PCAnywhere exists on a machine, you have to reinstall the Afaria version to make it work correctly from the Afaria console. Xcellenet left remote control as an add-on feature, so if you don't need it, or already have remote control, you don't need to install it or pay extra.

Afaria's Handheld Server supports three types of devices: Palm OS, Windows CE and the Research in Motion BlackBerry pager. Because Afaria was the only product that offered support for the BlackBerry, we did not test out its capabilities.

The device client is bulky. For the Palm devices, some of which have only 2M bytes of memory to begin with, a 173K-byte client might be hard to swallow. However, this larger client is fully functional, with or without the

companion workstation.

So if your PDA has a modem, the Afaria client can connect directly to the Handheld Server and execute its subscribed channels.

The Windows CE client worked well on our Compaq iPAQ 3650. The inventory and software channels worked just as flawlessly as they did on the workstations. But things didn't go quite as smoothly with our Palm III units. Sometimes HotSync would crash during updates, especially after software distributions. Worse yet, when trying to connect the Palm to the Afaria server directly, it would often give the Palm a Fatal Exception error, requiring a reset.

Because Windows for desktops and Windows CE use essentially the same APIs, it's not surprising that the Windows CE client was more stable. We shaved a little off the score for our Palm difficulties and the current requirement of needing two servers.

#### Vision64

Swan's Vision64 manages only Windows machines, but the company plans to expand into the handheld arena. Because Swan does the installation for you as part of the base purchase, this product gets a perfect score for installation. They come to your business, install the product and give you (or your staff) a brief tutorial on how to manage and use the product. Swan also offers consulting services for larger and more complex rollouts.

Vision64's management console is written in Java. This is handy because it gives the same tool no matter where you are. While the console is quick when running on the server machine, it took longer to load when we were remote. Connecting to the server to do administration over a slow link should probably be avoided because it takes a while for all the Java classes to transfer and load. But, if you're in a pinch, it will work.

We liked Vision64's administration details. The major features of Vision64 are separated when creating other administrative logons. You can grant read-only or full permissions on these tasks. For example, you could create an administrator that only has read access to the inventory, or perhaps you want someone to create software distributions, but nothing else. It's easy to choose the capabilities of each account with a few mouse clicks.

The Vision64 architecture scales well, and is obviously designed with large infrastructures in mind. One Master Server stays within the organization, but you can have any number of Intermediate Servers dispersed throughout your network. The Intermediate Servers can have administrative functions on them, or

the distribution points. Collection and Servers package the software distribute its butions, which are stored on the other servers for delivery.

This may seem complex. Smaller organizations may only need one central Master Server and can choose to put the Collection Server on the same box. But Vision64 gives much larger corporations the ability to distribute services to any segment of their network as they see fit. This lets administrators put a service "closer" to dial-in connections for faster access, or put "local" servers in other offices, for better use of bandwidth.

For packaging and delivering applications to laptops, Vision64 has many options. For simple or small applica-

You can transfer them to the server, install them and then delete them, or leave them on the workstation. The disadvantage in leaving the packages behind is in storage space. However, the advantage is that the Vision64 client then has the ability to self-heal the applications, even if disconnected from the network. It is possible to create CD images of your distributions and have the Integrity Control functions retrieve any needed files from there, rather than the hard disk. This compromise lets your remote repair applications without connecting to the network again.

For inventory, Vision 64 can collect software and hardware information. If you want Desktop Management Interface hardware information or SNMP



Vision64 from Swan International offers excellent remote control.

tions, its install program can be sent as a whole, then automatically launched, perhaps with an answer file or in silent mode. If the application or data is just a collection of files, it may be easier to just push them to specific directories on the client machines. However, Vision 64 can also use its Collection Servers to take "snapshots" and package applications.

A snapshot of the laptop is taken before and immediately after the installation of an application. The Collection Server then compares the two snapshots to determine what needs to be sent. This includes new files, differences in existing files and even registry updates and changes.

Vision64 uses "integrity control" to periodically check these software distributions for accuracy. If it detects file or registry differences, it can send changes to fix potential problems. It can be configured to fix any difference in files, or it can assume that if the file is newer it is an acceptable update.

Another handy feature is how Vision64 can deliver these packages.

traps collected, it will require a thirdparty client piece (such as OpenManage) to pull from the clients. But once retrieved, Vision64 can incorporate the data into its databases (SQL or Oracle). The server can pull a complete directory listing from each machine. If someone is short on disk space, this will give the administrator a roadmap of where to find unneeded files.

On the management console, inventoried software is categorized first by vendor, then by product. It is easy to see what machine has which packages installed, or what machines a particular package is installed on. A query tool can define search criteria to find machines across your network. Once the inventory is collected, it is available to query, regardless of current connection status. You can define groups based on these queries to target certain functions, such as software upgrades, or knowing who gets which packages.

We were impressed with Vision64's remote control features, especially the extra layer of security and control. The See **Review**, page 102



THEY'D HEARD THIS WORLD WAS OPEN... BUT THIS OPEN?

THE MOST SCALABLE LINUX DATABASE ON THE PLANET

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remote control agent can be configured with profiles for different people to connect with — each being password protected. But you can also limit access to certain files and directories. For example, let's say you want an administrator to remotely look at what's going on with a machine in payroll, but you want to make surc that person doesn't start poking around in files he has no business in. Simply add that data directory as an exception, remove their rights, and they can't open the file. It will say the file is in use or the drive is not ready. The one time when this feature can be defeated is if a file is already open on the desktop when the administrator connects. It won't close that file, but it will prevent it from being reloaded or saved during that session.

#### **Orbiter**

Callisto's Orbiter runs on Win 2000

or NT, and uses SQL Scrver as its database. Orbiter's management is done through a Win32 executable, but it can also be installed on any machine that can make a TCP/IP connection to the server. Installation was very straightforward. Assuming your SQL Server is installed ahead of time, you can easily complete this install in 10 minutes.

Orbiter calls its functions "jobs." You can create jobs to deliver and maintain files, retrieve files from remote machines, take inventory, run diagnostics, or even collect information for a "change analysis."

Orbiter creates each job with a very intuitive wizard. Once created, the jobs can be scheduled to run once or on a schedule. Different jobs have different intervals, ranging from hourly to monthly.

Orbiter makes quick work of taking hardware and software inventories. It can pull back an extensive inventory of the hardware, and catalog it in the database. Using prepackaged or custom queries, it is easy to find machines that meet certain criteria. The query tool makes it easy to specify what you're looking for. It lists the resources it is tracking. After qualifying them in some way (for example, any machine with more than 300M bytes of free space), off it goes. You can also create query groups that are updated on a schedule. For example, you can have Orbiter find machines that have low disk space, then create a job for those

machines to purge temporary files once a day.

Software delivery can copy files or maintain that distribution. You can send an installer package and have it launch automatically, perhaps even with an answer file or template. The advantage is that you can completely automate an install, or let a user install it. However, if you install the files individually, Orbiter can check for the existence of these files and repair the distribution if any files are missing. They are checked each time the distribution job is scheduled to run. Unfortunately, it does not yet have the ability to maintain registry health.

A job entitled "Change Analysis" can help this. It collects information from an ailing workstation, then compares it with previously collected data. Orbiter then shows the administrator all changes between them. This includes registry changes, files added or deleted, space limits on disks and hardware configurations. They are even colorcoded to make it very easy to quickly

Alerts									
			Job List						
Job Calendar	Name	Туре	Run Time	Successful	Failed	Pending	Skipped	Total	۵
	Distro for Acrobat 3.01	Callisto Software Dis	3/26/2001 4:00 PM					2	
Job List	Save important file:	Callisto File Retrieval	3/23/2001-9:05 AM					2	
	夏 Test software invent	Callisto Software Inv	3/22/2001 2:47 PM					2	- 1
Machines	攻 LViewPro eval	Callisto Software Dis	3/22/2001 2:36 PM					1	
	又 Test Disk Space mo		3/22/2001 2:25 PM					2	- 1
	☑ Test Hardware inve	Callisto Hardware In	3/22/2001 2:15 PM					2	- 1
Software Inventory	Save important files	Callisto File Retneval	3/22/2001 9:05 AM	2		-		2	-1
	✓ Test change analysis2		3/21/2001 4.20 PM	1			***	1	
	✓ Test change analysis	Callisto Change Anal	3/21/2001 4:10 PM	1				1	- 1
Software Distribution	✓ Dne time inventory o	Callisto Software Inv	3/21/2001 2:55 PM	1	***	***		1	_
	✓ LViewPro eval	Callisto Software Dis	3/21/2001 2:36 PM	1				1	
	✓ Test Disk Space mo		3/21/2001 2:25 PM	2				2	
File Retrieval	Test software invent	Callisto Software Inv	3/21/2001 2:20 PM	2				2	
	✓ Test Hardware inve	Callisto Hardware In	3/21/2001 2:15 PM	2		-		2	
Change Analysis	Save important files	Callisto File Retrieval	3/21/2001 9:05 AM	2	-	-		2	-1
	✓ Test Disk Space mo	Callisto Disk Space	3/20/2001 3:10 PM	2				2	-1

Callisto's Orbiter is very easy to use.

browse through the extensive and potentially long list. Orbiter does not have any remote control features built in. However, using Change Analysis, you can frequently diagnose a problem without needing to see the work-station.

File retrieval is another handy feature. You can configure a job to grab certain files from the workstation, or even scan entire directories for new files. This can be the result of diagnostic tools or even data files that need protection. They are copied back to the server, so if a user deletes one, the administrator can create a software delivery job to restore them. However, the user cannot make this request on their own.

Every machine that needs to be managed by Orbiter must have a client installed on it. Again, this installation is all but trivial. If you can feed it the address of your server, you can set up the client. Once the client is installed, it reports to the Orbiter server. The client is always running. It "sees"

Mobile Management whether you have network connectivity and does its business in the background, throttling back to stay out of the way. It grabs a list of work to do and stores it locally on the workstation. By default, there is an interface to the client for the user.A schedule and status of jobs is displayed on the main screen. Users can even suspend all job processing if they need all their bandwidth, such as those using a dial-up connection. Orbiter's bandwidth consumption can even be "throttled" within the client so you can be sure your telnet or browser sessions will not time out.

Another nice feature is how you can request software distributions immediately. For example, the rule for delivering and checking your main application won't run until tomorrow, but you accidentally deleted some of its files. You can go to the software tab, select the package and request a new install. Orbiter immediately checks the files and sends what is needed to repair your distribution.

The Orbiter client is also capable of managing Palm OS devices, as long as HotSync is installed on the machine. It will push a small (17K byte) agent to the Palm device. During a HotSync, if inventory jobs run, the agent collects the hardware information and catalogs what software is present. Software delivery jobs can also be created to install

applications to the Palm units. The Palm units rely on the workstation to be managed. They cannot interact with the Orbiter server on their own, even with a modem connection.

Other features of interest include connectors for Microsoft's Systems Management Server and Peregrine's Service Center.We did not test these in our review.

Orbiter gets high marks for its installation and ease of use. We took a bit off for not having remote control capabilities, but not too much because the change analysis is a nice middle ground.

#### iMobile Suite

Synchrologic's iMobile Suite is comprised of four products that can be mixed and matched to provide needed services. They are all managed centrally, using the Microsoft Management Console.

This install was tedious and the most involved in this review. Many of the extra steps involved manually set-

ting up the Web site and virtual directories within IIS. But once you complete the install, it's smooth sailing. Whether you install one or all the pieces, they are all accessible in the same place, using the same tool.

IMobile Suite is built around keeping data synchronized. There are functions for delivering and retrieving files from clients, regardless of their platform. IMobile Suite provides functionality to Windows laptops as well as Palm OS devices, whether hooked to a PC or using their own network connectivity. Pocket PC and Windows CE functionality will be included in the next release.

The clients use a Web interface to interact with iMobile Suite. Once they log on, they can see what tasks have been made available to them. The administrator can make tasks mandatory, or let the user decide to subscribe or not. A schedule can be pushed out to the clients for reconnection times. This ties into the Task Scheduler under Windows.

File backup and retrieval is well thought out. If a back-up task is assigned to a user, the Web interface makes it easy to run the job at any time, or on a schedule. The client and server use compression when sending files to ease the bandwidth required.

It is also easy for a user to request a restore of files previously backed up from the client. Go to the Backup page, and click on "Restore Files." It will return a list of files that have been backed up. They check the ones they need, select "Download Now," and the files are restored.

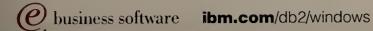
Another noteworthy feature, but just outside the scope of our review, is the Data Sync Server portion of iMobile Suite. For those applications that use databases (sales quote programs, for example) it is important for those database changes to be synchronized with the home office. You can define applications for which the iMobile client will keep the remote database synchronized with a central version.

Also, the iMobile Suite server can capture a Web site and make it available while offline, which can be handy if you have documents on a company intranet that you want available to mobile users.

Each time the iMobile client connects, it sends some inventory information back to the server. IMobile Suite is user-centric in how it stores this information. You have to first look at the user, then select the inventory properties to see the machine information. It will update this with the information from the last machine they logged on from, or the last PDA they used. But because PDAs are such personal devices, it is rare for multiple See **Review**, page 104



TWICE THE POWER OF ORACLE • A FRACTION OF THE PRICE



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users to share one.

If you look at the user, then select hardware inventory, it will show you some detail about the machine, including free disk space, environment variables and a few other details. It is not really that exhaustive. When you look at the overall inventory information, it merely presents statistics of all machines together. For example, "you have 30 Windows 98 machines and 20 Win 2000 machines.

The software inventory is similar, in that it is tied to the user, but separated by Windows or Palm OS categorization. When you look at the inventory information, it will list the name of a package and how many users have it installed. For example, "you have 80 copies of Office 2000."We would have liked a little more detail.

In regard to the Palm OS functions, the inventory features work even better. The hardware inventory on the Palm will return battery levels, free RAM, the Flash ID (unique identifier), OS version and other useful informa-

How we did it

We installed the server portion of our products onto a Dell Power-Edge 2400 server with twin Pentium III, 733-MHz processors, 1G byte of RAM and two 9G-byte SCSI disks. The server ran Microsoft's Windows 2000 Server and Internet Information Server 5.0.

Desktop clients were of various makes and models, ranging from a 200-MHz Pentium to a 550-MHz Pentium III. Our PDA clients were Palm IIIs with 2M bytes of RAM, and Compaq iPAQ Model 3650 with 32M bytes of RAM.

To test the software deployment, we deployed WinZip, Adobe Acrobat, Lview Pro and MemTurbo. Delivery of the applications was dependent on what the product supported. We broke the applications by deleting files, modifying files and backrevisioning files.

In scanning inventory, we looked for thoroughness and accuracy. We tried changing hardware configurations and followed the changes back to the server.

The files to be backed up were Excel spreadsheets, Word documents, graphics files and text files from 20K bytes to 50K bytes in size.

To perform remote control, we tried to launch applications, change desktop settings, and restart the machine.

Mobile Management install is completed, a tion. The software inventory will give details about programs (.prc files) and/or databases (.pdb files) and their size.

One unique and extremely useful feature in iMobile Suite is how it can send documents created on Windows machines to the PDAs. The client has two companion programs with it, which are viewers that let you send spreadsheets or word processing doc-

uments to your end users' PDAs. So if you have sales figures in Excel spreadsheets, or procedures in Word documents, you can now just send them directly to your Palm users and let iMobile worry about the file conversion. It downloads two viewer programs, one for "spreadsheets" and one for "docs." It's a proprietary format, and you can't create these files on the PDA.

Currently, iMobile Suite does not offer any kind of remote control functionality.

HH.EXE IE45ETUP.EXE EXTRAC32.EX CLICONFG.EX MOBSYNC.EXI MSINFO32.EX WSCRIPT.EXE CMDL32.EXE #

wizard packages the client install

and makes a Web page to install it from.All the information necessary to

begin managing the client is con-

tained in that package. Give your

file locally and run it), and the

ter itself.

users a URL to that page, have them

click on the install link (or save the

machine begins to automatically regis-

iMobile Suite offers top-notch remote backup and restore.

#### **Mobile Automation 2000**

Mobile Automation 2000 can manage Windows machines, Palm OS and Windows CE devices. The PDAs are managed via the companion workstations. The desktop can retrieve information about the PDA, store it, then send it to the server when next connected. Also, the server can send things to the PDA and store them until the next sync. Mobile Automation 2000 can use an Oracle, Microsoft SQL server or Access database to store its data. It also uses IIS as an administrative reporting tool and for user interaction.

The installation was straightforward and intuitive. As long as your database of choice and Web server are running ahead of time, the base installation can be completed — with little interaction needed — in about 15 minutes. This includes a master Command Server, the administrator console and the Web tools

To manage distributed segments on your network, Mobile Automation can also deploy Secondary and Relay Servers wherever you want. Once machines connect to the Command Server and register, they can be assigned to Secondary Servers on their local network. Relay Servers can be sent packages defined by the Command Server, giving clients nearby repositories to use.

Distribution and installation of the client, or laptop "agent," is a simple process. Once your administrative

Once clients register, they can be assigned to any number of groups for package distribution. These packages can be for software distribution, inventory management, remote file retrieval and remote control.

Hardware inventory uses a range of tools to gather detailed information. Basic information can be gathered directly from the client's operating system. But Mobile Automation 2000 can also tap into details provided by DMI agents, Windows Management Interface Instrumentation (WMI) agents, or even Wired for Management agents. Windows Millennium Edition and Win 2000 come with WMI functionality built in. Mobile Automation includes WMI agents for older Windows clients that are ready for distribution. Using the predefined groups, you can send a WMI software distribution to your older Windows boxes automatically after initial registration. Other useful prepackaged distributions include Software Inventory, Detailed Software Inventory, and samples for retrieving files and doing backups.

Reports for the hardware and software inventories are available from a Web browser. If you are using the administration console and select a report, a Web browser is spawned with the results.A remote administrator would use a Web browser to first get to the Web administration page, find the machine in question, and then request the same report.

Mobile Automation offers several ways to get software and files to

remote users. If the application is small enough, you can copy files to the remote workstations. This would also be a handy way to distribute virus definition updates, spreadsheets or other documents to keep current. If it is an application that is packaged as a stand-alone installation, it can be delivered and launched automatically. You can have it run silently with answer files, or you can let the user have con-

trol over the install.

However, creating a custom package gives the most flexibility and control.A machine is used to create the package. First, the machine is scanned before the software installation and once again after the install is completed much like the "snapshots" used with Vision64. It presents a listing of every difference it finds, both on disk and in the registry. You are free to remove any files that aren't associated with the package, as there may be stray changes that happen unrelated to the installation.

Once the package is completed, you can specify how to install it silently or with user permission and supervision. You can also determine how it will install the files; whether they need to only be newer or if they must be identical. Finally, the distribution will have a schedule and interval for how often it will try to run. This can range from a few minutes to two months, or not at all.

Another interesting feature is the ability to "publish" the distribution to a Web page. This gives the users a central repository where they can go to request packages for installation. For example, not everyone may need an image viewer, but you may choose to make one available just in case. This can also let users help themselves if they happen to damage an application. If the application is published for distribution, they can connect to the Web page, click on the distribution and it will replace what it needs to.

If you choose, a log file can be updated each time a distribution is run, either by a push or by the Web interface. This gives an audit of how many times a package has been reinstalled.

For those who need remote control, Mobile Automation offers its Live Remote solution. It lets an administrator remotely take over the machine. It can be configured to load automatically, or only if the user manually starts it. The user can be alerted to a connection, or choose to have it remain See **Review**, page 108

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www.BlazeNP.com

Booth #3409

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advances in the 100Gb market and beyond.



#### Caldera

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www.caldera.com

Caldera (Nasdag: CALD) is the Linux for business technology leader in developing and marketing successful Linux-based business solutions. Caldera is unifying UNIX with Linux for business, something no other company has ever done, and has a family of solutions offering a powerful alternative on Intel<sup>®</sup> hardware.



#### **Captus Networks** (530) 406-3500

www.captusnetworks.com

Booth #7937

Captus Networks provides security solutions for service providers and enterprise networks that protect e-business brands from cyber attacks. The CaptIO™ family of network security devices can identify and immediately stop Denial of Service (DoS) and Distributed DoS (DDoS) attacks, originating from outside or inside a network, without disrupting legitimate traffic.



#### **Entrada Networks**

(858) 623-3265

www.entradanetworks.com

Booth #3365

Silverline™ SAN over IP Transport Switch Silverline™ is a multi-service access, protocolneutral switch enabling OEMs and integrators to connect isolated SAN islands. Silverline's six-port configuration (2 FC, 2 GigE, 2 MAN/WAN) provides performance and flexibility unmatched in its class. This is the first in a series of SAN transport products being developed by Entrada Networks.



digital

#### **Digital Networks**

(978) 474-8300

www.digitalnetworks.net Booth #SC305, Meeting Room #ER38

Digital Networks provides network connectivity solutions for enterprise customers in the workgroup, wiring closet and campus backbone environments. Supporting both the worldwide installed base of DEC network equipment users and new enterprise customers, Digital Networks' products offer low cost, innovative features, superior warranty and fully integrated management through its clearVISN network management tools. New products introduced at N+I are the DNmultilayer1000 family of switch routers for the enterprise, the DNswitch router family for workgroups, the DNswitch 800, the DECserver 732, and the DECswitch 90 Fast Ethernet Switch.



#### **Executive Software International** (800) 829-6468

www.executive.com

**Booth #20 Microsoft Partner Pavilion** 

Executive Software® is a leading developer of system management tools for Microsoft® operating systems. Diskeeper<sup>®</sup> 6.0 is the only automatic disk defragmenter for Windows® systems that truly unleashes a system's maximum performance. See for yourself. Come to our booth for FREE 30-day Trialware.

## Companies to watch at Las Vege May 1



#### Foundry Networks, Inc. (888) TURBOLAN

www.foundrynetworks.com
Booth #4641

Foundry Networks, Inc. (NASDAQ: FDRY) is a performance and total solutions leader for end-to-end switching and routing including Internet routers, Layer 2/3 LAN switches, and Layer 4-7 Internet traffic and content delivery switches. Foundry's 3,300+ customers include the world's premier ISPs and enterprises, portals, search engines, e-commerce sites, and universities along with the leading entertainment, pharmaceutical, government, financial, and manufacturing companies.



#### Geist Manufacturing, Inc.

(800) 432-3219

www.zonit-geist.com Booth #2879

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#### Interloci Network Management (203) 622-4645

www.interloci.com

Booth #2105-O

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#### SPECTRUM CONTROL INC. A Control Products and Systems Company

**Spectrum Control, Inc.** 

www.spectrumcontrol.com

Booth #7927

(814) 835-1650

At Networld+Interop, Spectrum Control will be introducing new models from its line of SMARTstart and SHARPstart power distribution units. These units are customized, upgradable systems capable of remote network management and remote reboot via built-in modem, LAN/WAN and wireless connections for AC or DC networks.

#### Maxtor

#### Maxtor (866) MAXTACH

www.maxtor.com/maxattach

Booth #933

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#### **SBS Technologies, Inc.** (888) SBS-COMM/(508) 261-7007

www.sbs.com

Booth #7651

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Review, continued from page 104

silent. Live Remote is based on the AT&T Labs open source project, called Virtual Network Computing. It is integrated into the Mobile Automation console, and the security is tightened a bit.

Otherwise, the functionality is identical.

Mobile Automation supports Palm OS devices and those running Windows CE and newer Pocket PC models. They are supported through their companion desktop machines, which means the functions are monitored whenever the user connects the PDA to their desktop/laptop to synchronize.

Mobile Automation can handle multiple PDAs synchronized from one workstation. It takes a modest hardware inventory and some software inventory. It seems to be better at finding software on Windows CE devices than on Palm OS devices, but it can deliver new packages to either platform just fine.

Packages for PDAs can also be published to the Web page. However, the package needs to be delivered to the companion workstation, and not directly to the handheld.

Mobile Automation got consistent marks across the board. While not overly flashy, it just got the job done in all the areas we were looking for. It was easy to use, and easy to understand. Not only can the administrator fix remote problems, but it also gives remote users some tools to help themselves.

#### **Documentation**

All the products tested provided the same type of information, and all at about the same quality. PDFs are becoming the preferred method for distributing documentation, and rightly so. The documents were thorough, with plenty of examples, and indexed to make it easy to find what you need.

#### **Conclusion**

With the diversity we have in our products, the only way to come up with a winner is to clearly state the objectives. The features we looked for were a complete and accurate inventory of hardware and software, good deployment of software with the ability to fix the installation, the ability to back up and restore files from remote machines, support for laptops and handhelds, and some form of remote control of the machines. Based on these criteria, Mobile Automation 2000 wins. However, depending on your needs, the other products can also fit the bill nicely.

Berkley is the LAN Support Supervisor for the University of Kansas, Computing Services. He can be reached at Berkley@ukans.edu.



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## Companies to watch at Las Vegas





#### Net Optics, Inc. (408) 737-7777

www.netoptics.com

#### Booth #7737

Net Optics, a global fiber optics components manufacturer and supplier, is a recognized leader in network security and reliability.

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#### PowerQuest Corporation (801) 437-8900

www.powerquest.com

#### Hilton Conference Room #4

From PowerQuest, the makers of PartitionMagic and Drive Image Pro, comes a new storage management solution, the PowerQuest PowerManage Suite. PowerManage Suite is the only comprehensive storage solution providing centralized resource management for Windows NT and 2000 disk storage devices. Included in the PowerManage Suite is PowerQuest Volume Manager which allows you to easily copy, move, check or delete volume sets and partitions, and add new storage to RAID arrays.



#### Network Instruments, LLC (800) 526-7919/(952) 932-9899

www.networkinstruments.com
Booth #9821

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#### Network Technologies, Inc. (800) 742-8324

www.nti1.com

#### Booth #3467

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#### Network Appliance, Inc. (408) 822-6000

www.netapp.com

#### Booth #6337

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#### **Quarry Technologies, Inc.** (781) 505-8300

www.quarrytech.com

#### Booth #1241

Ouarry Technologies, Inc. is a developer of a carrier-class IP service edge switching solution used by NSPs to deliver advanced IP services to business customers. Its iO product family provides flexible service selection capabilities with sophisticated OoS and security attributes, allowing NSPs to readily offer a broad range of profitable, customized subscriber services ondemand.

## Companies to watch at Las Vegas May 6





Networks

#### Quick Eagle Networks (408) 745-6200

www.quickeagle.com
Booth #664

Quick Eagle Networks, Inc. is a provider of IP access for managed services and the world's leading provider of multilink access devices at broadband speeds. Through the company's IP Access Platform hardware, Quick Eagle is delivering carrier class IP access with groundbreaking managed services software applications through its many Service Application Packs (SAPs). Quick Eagle Networks' products deliver carrier-class connectivity and world-class managed services applications to ease provisioning, provide monitoring of the network health and proactive network maintenance.



#### **Net to Net Technologies**

(877) 638-2638

www.nettonettech.com

Booth #1059

Net to Net Technologies provides easy to use, cost-effective IP DSL Broadband Access solutions by leveraging the strength of the IP protocol and the simplicity of Ethernet. Net to Net's native IP DSLAMs, CPEs and IADs provide Carriers and Service Providers with a truly plug and play, profitable DSL solution.

#### RiverSoft

#### **RiverSoft**

(415) 875-4100

www.riversoft.com

Booth #2452

RiverSoft (LSE:RSFT.L) offers advanced network management solutions for service providers and enterprises, designed to cope with the dynamic nature of today's IP networks. RiverSoft solutions have sophisticated discovery and automated fault isolation capabilities, substantially reducing network downtime and human intervention. With RiverSoft, the time required to rectify network problems can be reduced by 70% or more. Dependence on skilled network management personnel to manually reconfigure, manually reprogram, and manually diagnose network problems is greatly reduced.



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#### **Sitara Networks** (888) 748-2720

www.sitaranetworks.com Booth #4659

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#### **Recourse Technologies**

(877) 786-9633 www.recourse.com

Booth #547

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## Companies to watch at Chas Vegas, No. May 6-11





#### Sun Microsystems, Inc. (650) 960-1300

www.sun.com **Booth #1713** 

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#### **Western Multiplex** (408) 542-5200

www.wmux.com Booth #7263

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Ubizen, Inc. (703) 391-0375

www.ubizen.com

Booth #1759

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#### Verado (303) 874-8010

www.verado.com

Booth #1969

Verado Holdings, Inc., headquartered in Denver, Colorado, is a provider of outsourced data center and managed service solutions for businesses. Verado's state-ofthe-art data centers host, monitor and maintain mission-critical Web sites, e-commerce platforms and business applications. Verado currently operates data centers in Denver, Dallas, Houston, Portland, Santa Clara, Irvine, San Diego, Glendale and Salt Lake City. The data centers comprise approximately 245,000 square feet of space.

#### **MICROMU**

#### Micromuse, Inc. (415) 538-9090

www.micromuse.com

**Booth #424** 

Micromuse Inc. (Nasdaq: MUSE) is the leading provider of realtime fault management and service assurance software. The Netcool® suite is used by telecommunications, Internet, broadband and enterprise networks worldwide to monitor large-scale networks in realtime and maintain availability of network-based customer services and applications.



#### Visual Networks, Inc. (800) 240-4010

www.visualnetworks.com

Booth #5523

Founded in 1993, Visual Networks, Inc.® (NASDAQ: VNWK) is the market leader in providing service management solutions for mission-critical networks and outsourced Web services. Using Visual Networks' solutions — such as Visual UpTime<sup>®</sup>, Visual Trinity™, Visual IP InSight™ and Visual eWatcher™ — service providers and enterprise customers can increase network reliability, dramatically reduce operational expenses and lower their total cost of ownership. Visual Networks' customers include AT&T, British Telecom, Cable & Wireless, Merrill Lynch, Prodigy, SBC, Sprint, Verizon and WorldCom. Visual Networks' headquarters are located in Rockville, MD, with international offices in Europe, Asia and Canada.



## Management

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## Put it in writing

Brush up on the basics to make your project proposals and memos more effective.

BY DREW ROBB

roposals, budget requests, project updates and employee reviews loom large on your to-do list, and those are just the documents you need to draft this week. There's no end to the writing responsibilities imposed on you, and you're ill-prepared for the challenge.

While these tips won't miraculously transform anyone into a Pulitzer Prize winner, they should make it easier for you to get your message across.

#### 1. Get to the point.

Too many documents are ruined by long-winded presentations of basic theory or design details before readers are clued in to the idea being discussed.

If you don't make it crystal clear in the first page what you're covering, many readers may miss the point entirely. Most people will scan through the first page or two looking for the highlights. If they don't find the basics summarized early on, they will become confused and probably shift their attention to something else.

Use devices such as executive summaries, introductions and bullet points of key concepts.

#### 2. Integrate text and graphics.

People seem to describe a project entirely with text or rely on diagrams to show how a system functions. Either option is ill-suited to describe complex technical details on its own. The best approach is to combine graphics and text.



"We present large and complex systems via diagrams and then make text descriptions of each object available when you click on it," says Jeffrey Arnold, director of network engineering at HotJobs.com in New York. "This provides an overall view of a project, as well as a zoomed-in view for particular portions of the system."

#### 3. Know your audience.

Authors usually know far more about their subject than the intended audience, so it's easy to become lost in your own brilliance and fail to communicate.

Take the time to understand the audience you're addressing.

Yancy Fox, vice president of operations at search engine technology firm Verio in Westminster, Colo., says whenever he's failed to think about his audience, he's prepared documents that were too technical or not technical enough.

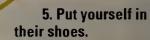
"It's vital to minimize the number of assumptions the reader will have to make," he says.

#### 4. Define your terms.

Sometimes, however, it isn't possible to know the make up of every member of your audience.

"You can't always predict if the reader is a five-year company veteran or a brand-new hire who is clueless," says Adam Watts, IT manager at Sacramento, Calif., company SPS Commerce, an e-commerce systems vendor. Similarly, you may have at least two audiences: those in the know and those who are uninformed.

How do you get around that? The wrong thing to do is prepare two different drafts or mark sections for novice and advanced readers. Watts says the trick is to define your terms. He suggests placing critical definitions near the start, as well as continuing to define words as new concepts are introduced. That makes it easy for some to get up to speed without boring the more technical folks.



Once you've written your masterwork, don't just submit it and hope it's good enough. Read it through as though you're the intended recipient.

If your boss, for in-

stance, is the one who needs to approve your budget request, try to put yourself in his shoes as you read the proposal. How does he view technical matters? What are his interests, preferences, and pet peeves? What has he objected to in past proposals?

If you can't manage this, there are alternatives. Dwayne Barstad, a systems architect for direct broadcast satellite service provider EchoStar Communications in Littleton, Colo., has his wife review some of his reports and gets feedback to see how they communicate.

Barstad also suggests distributing such documents to colleagues at least a few days ahead of important meetings. This brings him invaluable feedback, avoids embarrassing goofs in front of top management and, most importantly, gives everyone a chance to study the data before assembling in the conference room. "When the meeting takes place, you can cover the material at a higher level as everyone has already achieved some familiarity with it," he says.

Robb is a freelance writer in Los Angeles who specializes in technology issues. He can be reached at drewrobb@mediaone.net.

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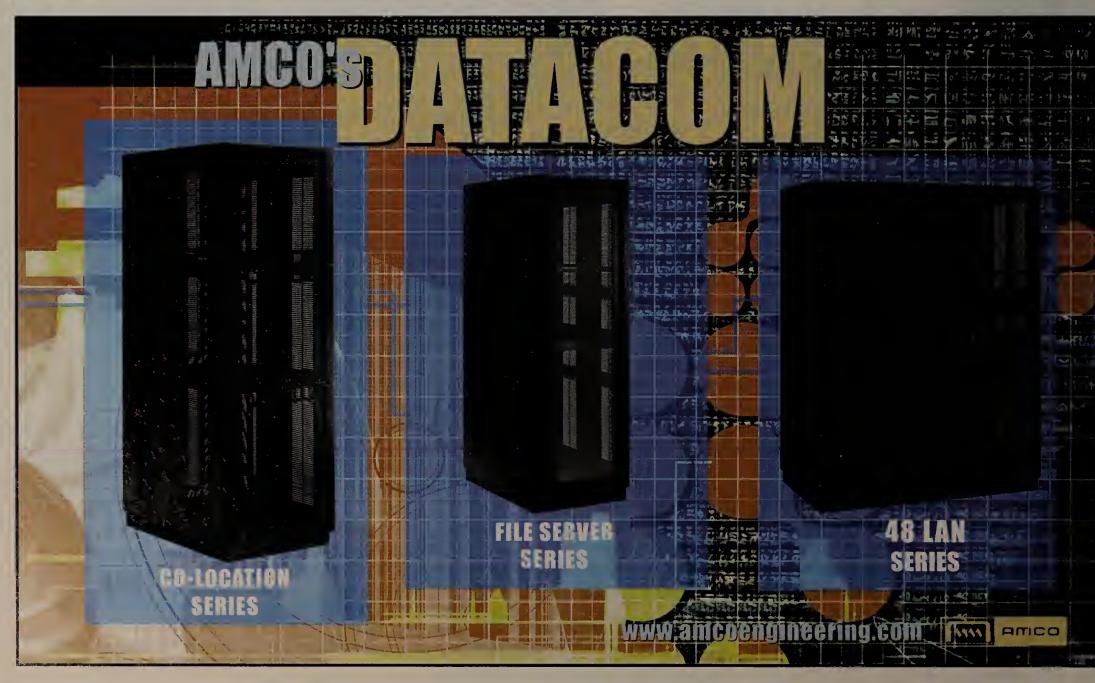
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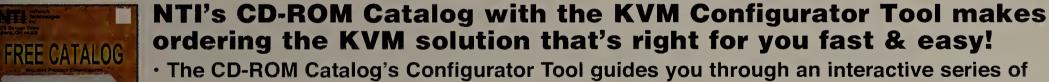


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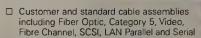
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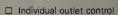
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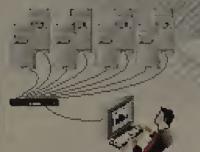
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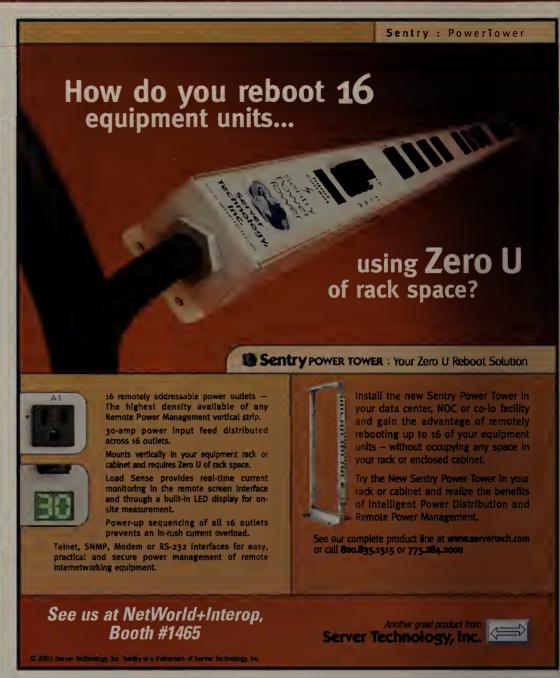
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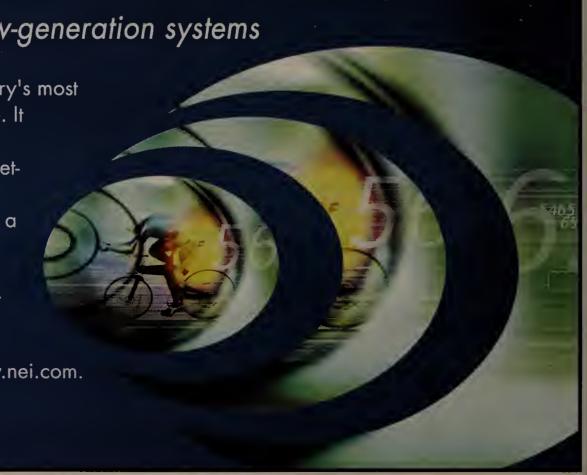
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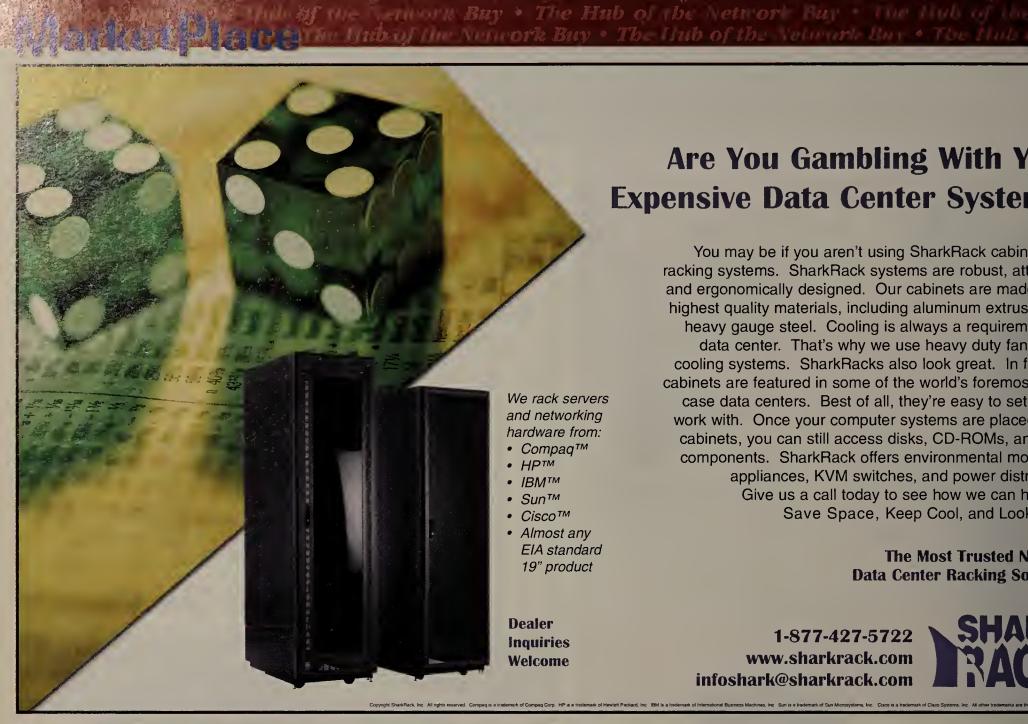


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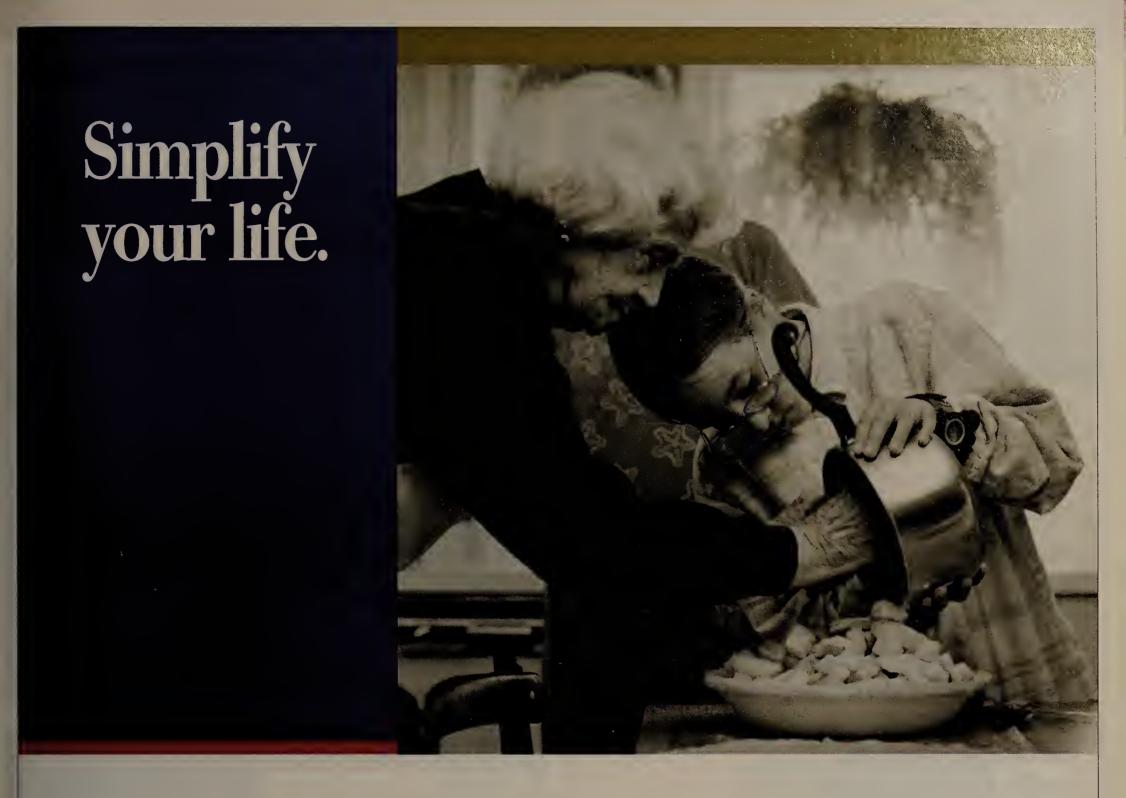
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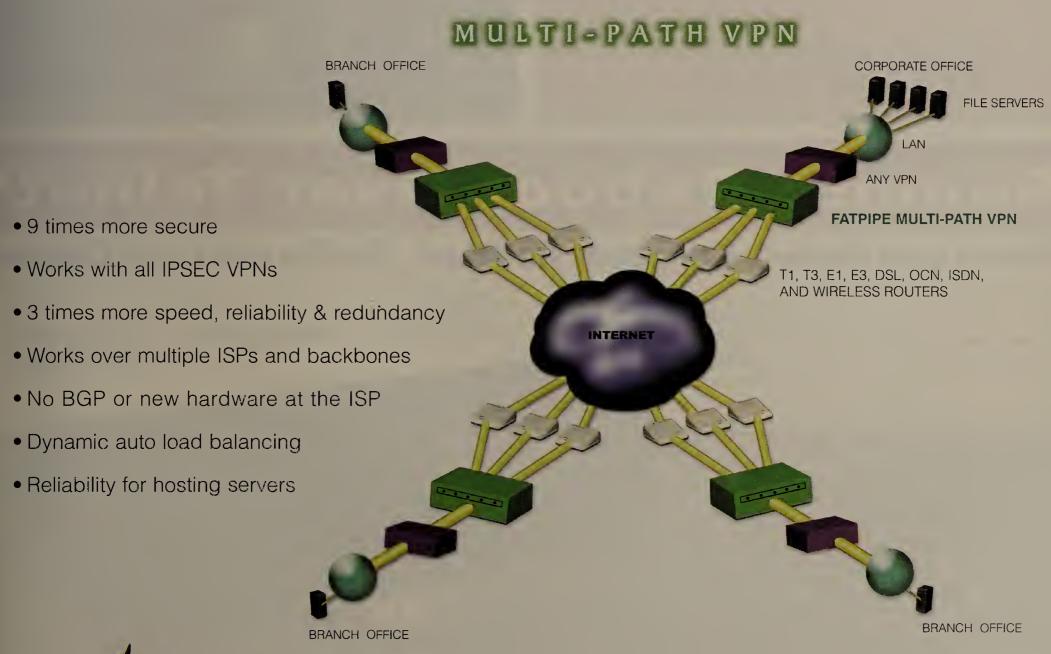
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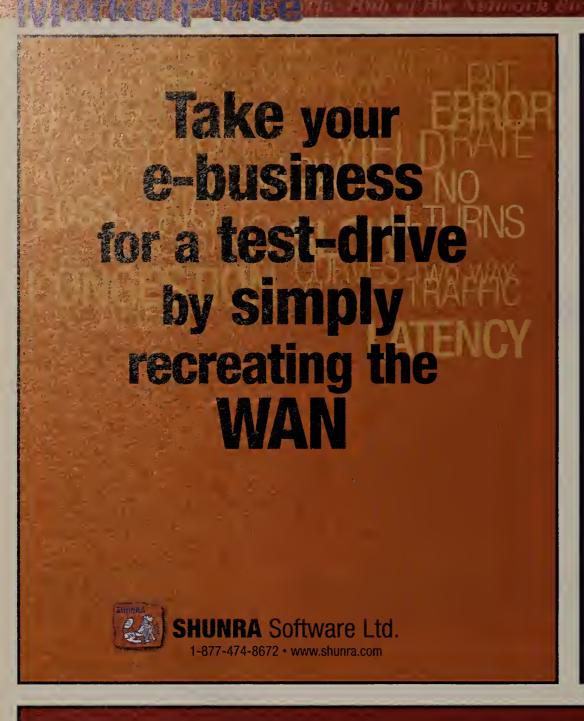
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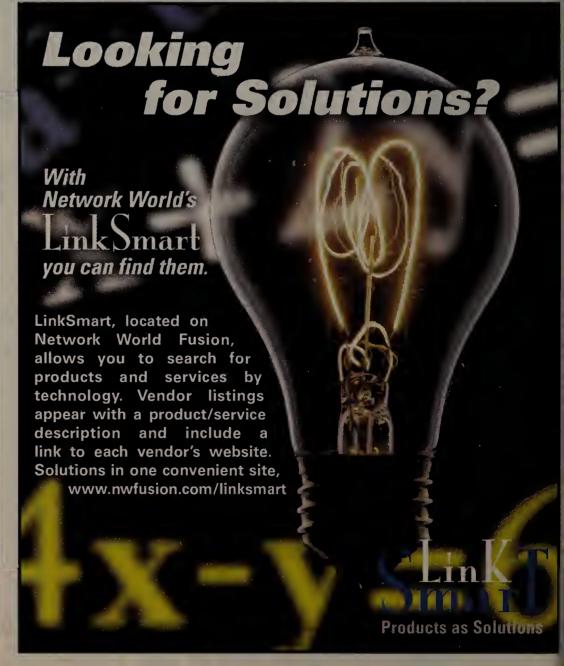
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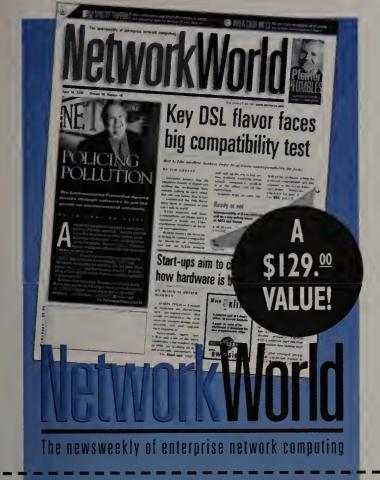




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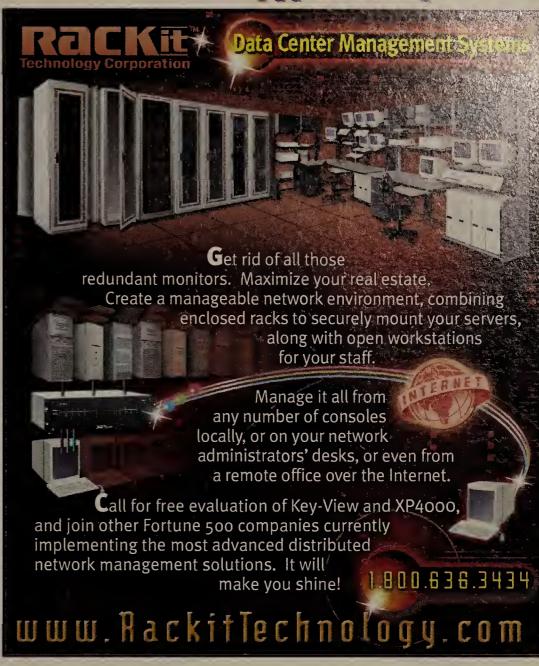
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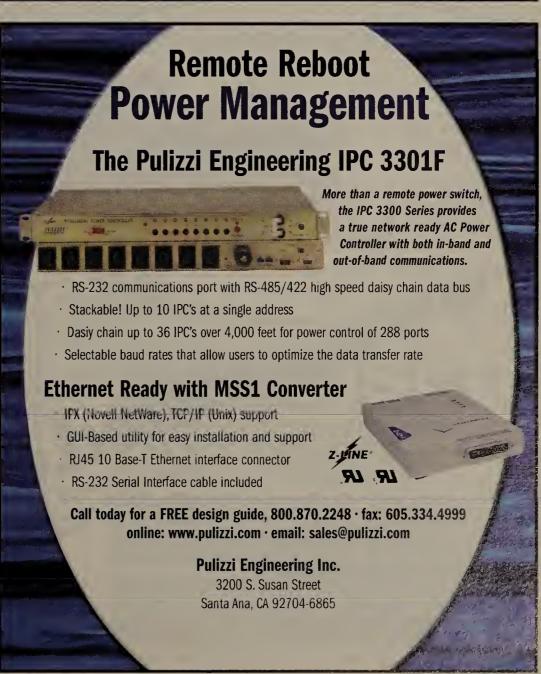
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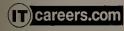
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Software Engineers wanted by consulting company in Manhattan, NY, Must have Master in Comp Science, applied computer technology or related fields. Minimum 2 years programming experience in C, C++, Java on Sun Unix or Windows NT platform. Knowledge in Unix, Relational Database, OOP is read. WebLogic, Websphere knowledge or experience with J2EE is a plus. Please send resume to HR Dept. Boyle Software Inc. 42 West 24th St. NY 10010. Fax 212-647-7175.

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Demonstrated knowledge and experience at a senior level in development, documentation and implementation of large operating systems, network, communications, and disaster recovery systems with emphasis on 2200 Series; A Series knowledge helpful; ability to assume responsibility for single or multiple operating systems; project development and management; monitor, advise, and adjust daily activities to support the user community at all times; ability to recommend install and maintain software products and new releases of system programs, make changes to existing programs to add new features or functions; collaborate on development of standards and procedures. Requires degree in computer science, engineering, MIS or closely related field; four years technical support experience in large systems environment or equivalent education/experience; requires excellent communication and teaming skills. Position #: AD3/C2WD/119/105264

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WEB DEVELQPER wanted by a Web Software Co in NJ. Dev, support & design internet and intranet related sites & software; support & maintain existing sites. BS in Comp Sci & 1yr exp in job offered req. Respond to: WWW Communications/HR Dept, 2428 Rte 38, Ste 101, Cherry Hill, NJ

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Software Engineer for Alabama based company. Must have a Bachelor's degree in Comp Science, Enga. (any field) and two years of exp. in Computer Software developing and/or consulting. Respond to: HR Dept., Electronic Healthcare Systems, Inc., 100 Brookwood Place, Suite 410 Birmingham, AL 35209. (Ref: 7429IM)

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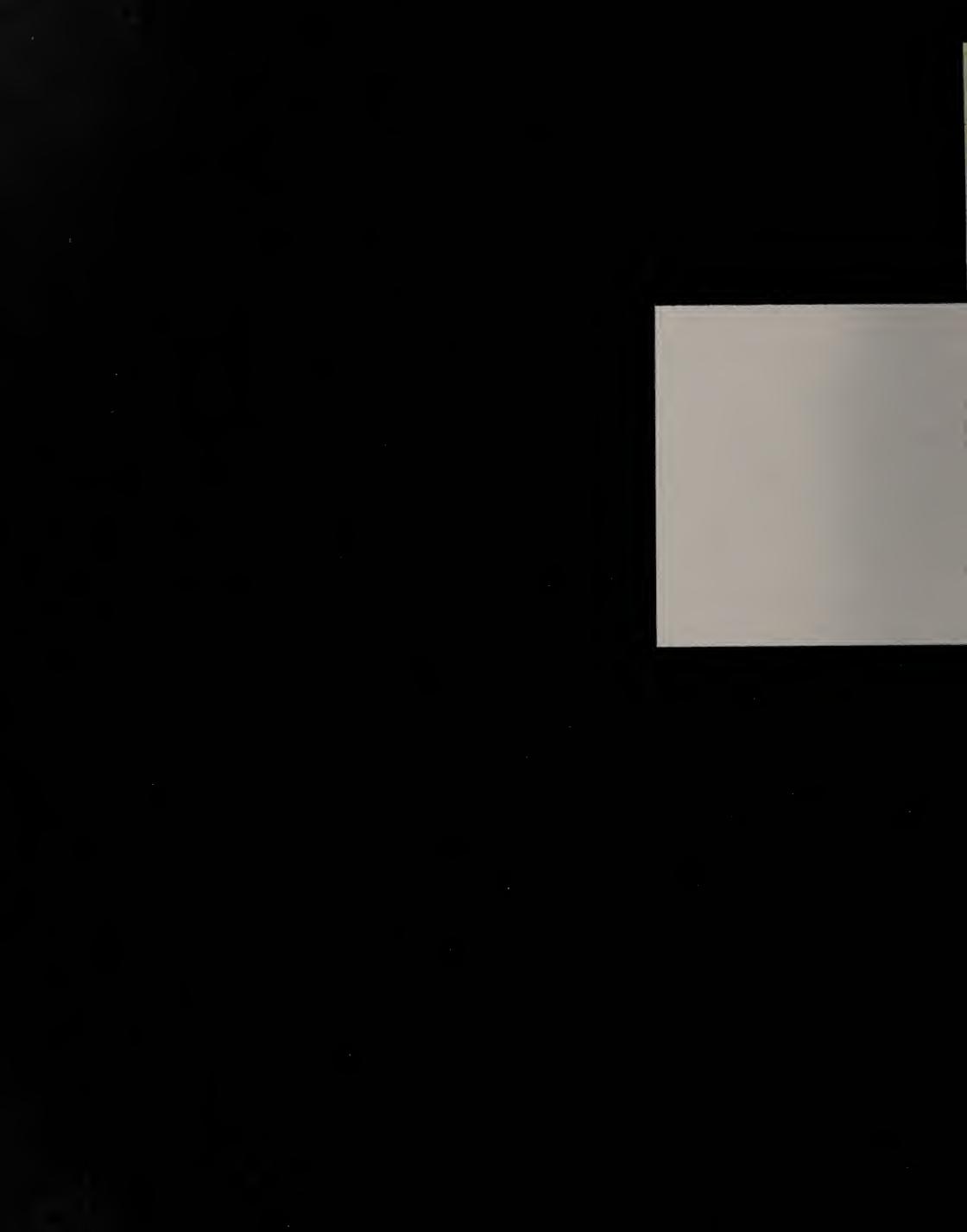
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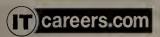
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exp. in the job offered or 2 yrs
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which may have been obtained which may have been obtained concurrently, must include: 2 yrs exp. using SQL, Access & Visual C++. Send resume to Fernando Claudio, ProcureNet, 9999 Veterans Memorial Dr., Houston, TY 77099

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Send 2 copies of both resume and cover letter to Illinois Department of Employment Security, 401 South State Street - 7 North, Chicago Illinois 60605. Attention: Shella Lindsey, Reference Number V-IL-25310-L. NO CALLS. AN EMPLOYER PAID AD.

Senior Software Engineer sought by cabinet manufacturer in Aurora, CO. At a senior level, engage in full life—cycle software development of internal business software applications, including enterprise resource planning (ERP) software applications, which run on an AS/400 platform which run on an AS/400 platform &/or incorporate client/server technology. These software applications interface with a SQL/Server relational database management system. Analyze requirements. Create designs & design documentation. Code, test, & debug the software applications. Engage in project management &/or user training. Use RPG/400, Visual BASIC, & other languages & tools in the design & development process. Requires Master's or equivalent. Specifically, requires a Master's Specifically, requires a Master's or foreign degree equivalent in Comp. Science, Eng. or Business Adm. plus three years of progressively more responsible experience; or a Bachelor's or foreign degree equivalent in Comp. Science, Eng. or Business Adm. plus five years of progressively properties. Adm. plus five years of progressively more responsible experience; Working knowledge of client/server architecture, ERP software applications & SQL/Server. \$61,600/yr; M-F; Bam-5pm. (2 openings) Respond by resume to James Shimada, CO Dept. of Labor & Employment, Tower II, #400, 1515 Arapahoe St., Denver, CO 80202 & refer to Job Order No. JL.1118506.

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Technical Consultants Test and evaluate software Utilize manual and automated testing procedures, Reg'd: Bachelor's Degree in Computer Science, Math or a related discipline and 2 yrs exp. as Technical Consultant or other software development occupation. Must have exp. w/UNIX, C and SQL attained through education or employment

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required. Requires Bachelor's in
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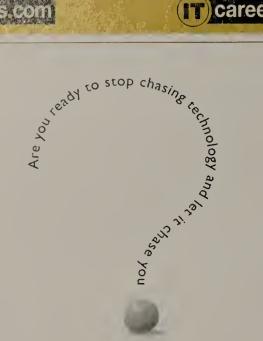
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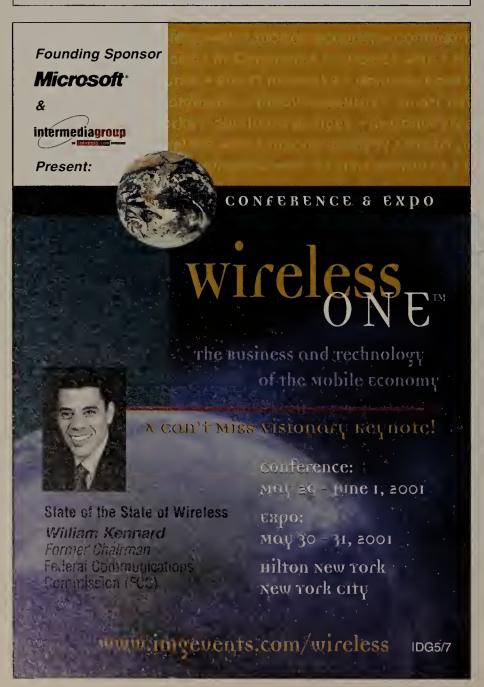
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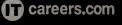
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# HOT PLACES TO WORKS Austin, D.C., Seattle

he element that makes or breaks information technology companies or professions is compelling work – a true innovation that secures a competitive position. And compelling work continues in these IT hot spots, providing new challenges and spawning the next generation of the IT industry.

Ahaza Systems Inc. is among those leading the way. The Seattle-based company is an Internet infrastructure company dedicated to developing network systems designed to keep data traffic moving at maximum speed. "We are focused on building a suite of next-generation switching and routing solutions for enterprise and Internet service providers," says Kirsten Joyce, director of marketing. The company, whose founder Mike Almquist was the chief technology officer and co-founder of F5 Networks, began ramping up in January. "We plan to launch our first products in the fall."

To develop the new suite of switching, cacheing and routing solutions, **Ahaza** is hiring electrical engineers, hardware architects and software developers. "Our success depends on hiring the right people," Joyce adds. "We are a well-funded startup that is working on cutting-edge technology. It doesn't get much better than this."

Another Seattle upstart is **Indaba Communications** (the Zulu word for "conference of wise people"). **Indaba's** goal is to develop a platform small enough to sit on a desktop, replaces your phone and becomes a complete communications appliance for control and connectivity for real-time simultaneous interaction with a large number of remotely located participants. The company is also developing a server and software backend to manage the platform and associated applications. "Many times, companies are focused on advances to previously created technology. Not so at **Indaba**," says Tim Poole, director of human resources and staffing. "We are developing new and compelling products for the next generation of communications."

To develop the technology, **Indaba** is hiring operating systems engineers – "what we call kernel hackers," says Poole. "We're looking for a person's ability to resolve complex issues that have not yet been resolved. You have to be up for research and for enormous technical challenges. In exchange, we offer challenging work, a great location and a company that truly respects its people. When we hire, we use a fairly rigorous process to assure the fit is equally right for the candidate and for the company."

Head south from Seattle, to Austin, and **Advanced Micro Devices** is also working hard to develop
entirely new technologies. "We're hiring in a variety of
areas," says Shirley Wallace, employment



Wallace likes to say that **AMD** is built on solid core AMD values. As the primary competitor for Intel, "our customers' success is our success. We seek to create and maintain lasting relationships based on trust and shared vision," says Wallace. The company continues to invest heavily in research and development with major locations in Austin, California and now Dresden, Germany. "Supporting people has always been our mantra here at **AMD**," she adds. "When people come here, they see and feel that, everywhere. As an example, we continue to reward performance – when other companies have cut back. This is also one of **AMD's** core values – people first and products and profits will foliow."

Indaba and Ahaza could fit as departments within AMD, which now employs 14,000 people worldwide. "Despite that size, we encourage people to wear different hats, and we keep our teams fairly small and agile," Wallace explains. "We are a leading technical company in the flash and microprocessor businesses, where you must have a passion for being on the leading edge of technology development. You work along side experts at AMD, and we're dedicated to getting leading-edge technologies to our fab floor's before our competition."

Head across country to Washington, D.C., and the mix of commercial and government sector information technology needs continues to support a thriving job market. **PricewaterhouseCoopers'** Mark Bradley, recruiting director for the Washington Consulting Practice, says that while career opportunities have slowed in other regions, the D.C. market remains strong. "The D.C. metro area offers unique and

sulting companies," says Bradley. "This combination of services and industry has helped put D.C. on the employment map."

PricewaterhouseCoopers offers a full spectrum of services to its clients. "Working in the government sector gives us the opportunity to improve and, in some cases, change the way our government functions," says Bradley. "We offer a wide array of technology services, to include e-business, enterprise application integration, enterprise resource planning and various web-based application services. We look for people who are multi-dimensional, who can contribute in multiple ways to a variety of projects and clients." The firm hires new college graduates, MBA and graduate students, as well as experienced professionals.

Bradley states, "Unlike many consulting firms, we do not hire people to fill slots on a job. We view each hire as a new, long-term, professional relationship. Our consultants often move from project to project, diversifying their skills and experience, thereby improving their value to the firm and to the market in general. We work hard at accurately mapping someone's skills and interests with the needs of our clients. The single greatest attribute we have is our people."

#### careers

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Broadwing, continued from page 1

expect "significant" cost savings. Businesses typically pay \$65,000 to \$70,000 per month for a national OC-3, 155M bit/sec connection from one of the big three carriers: AT&T, Sprint and WorldCom.

While not an apples-toapples comparison, Gigabit Ethernet competitors such as Cogent are offering 100M bit/ sec dedicated links to the

## MORE ON TAP

roadwing is planning a few other announcements for Net-World+Interop, including the introduction of some Web monitoring tools for its traditional data services and the expansion of its Optical Media Center hosting services.

The new Web-based network monitoring tools will let ATM and frame relay customers view their network and drill down to specific permanent virtual circuits on a secure Web site. Broadwing has customized network management software from T-Soft to offer the capability.

The new tool does not offer real-time statistics, but offers daily network updates. Users can check the site daily to monitor usage and increase their frame relay committed information rate if nearing capacity. The system also stores up to three months of network usage history.

Broadwing is also expected to expand its Optical Media Center services by announcing e-learning, streaming media, digital encoding, digital rights management, media asset management and broadcast consolidation services. The services are designed to enhance support for content-heavy applications such as distance learning and video applications.

- Denise Pappalardo

Internet for \$1,000 per month. Broadwing's pricing is expected to land somewhere in between. And unlike private line OC services, Gigabit Ethernet services are not priced based on length of circuit.

Broadwing will support the service over its recently completed SONET-based national fiber-optic network that uses Corvis optical gear and Cienna dense wave division multiplexing (DWDM) electronics (www.nwfusion.com, Doc-Finder: 4165). The network consists of three meshed optical rings that span the U.S. and delivers three fiber connections to each switching point.

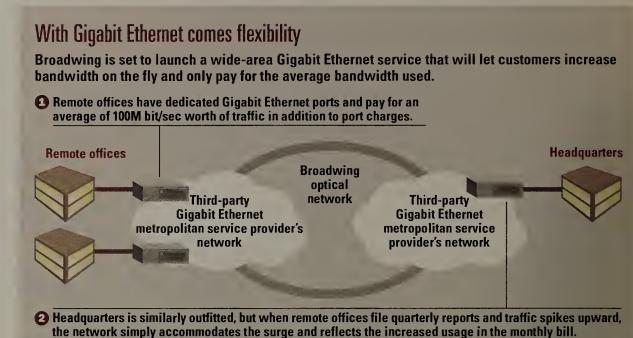
The Gigabit Ethernet service will be a fully managed offering that includes customer premises equipment — most likely a Cisco router that supports LAN and Gigabit Ethernet interfaces. Broadwing says it has deployed Gigabit Ethernet switches to support the service, but has not yet selected a single supplier and won't reveal the companies it is evaluating.

Although Broadwing has some local fiber, none of it is yet operational so the long-distance company has to partner with other companies to offer end-to-end services. "We are working with providers that have metropolitan networks and direct fiber into [office] buildings," Tomae says.

The company will announce a deal with at least one metropolitan Gigabit Ethernet service provider this week, he says. Although Broadwing wouldn't name the partner, companies that come to mind include Yipes Communications, Cogent and Telseon, all of which are supporting Gigabit Ethernet over optical metropolitan ring networks.

Yipes is offering Gigabit Ethernet services in 20 metropolitan areas and offers city-to-city connectivity through third-party carriers. Cogent is primarily offering Gigabit Ethernet Internet access services, and Telseon is primarily selling to other service providers.

While it's ideal to have direct Gigabit Ethernet over fiber to each location, Tomae says that won't be an option for users in some smaller cities or remote locations. In those cases, customers will



have to connect to Broadwing's Gigabit Ethernet service using a standard OC-3, 155M bit/sec or OC-12 622M bit/sec connection. But these high-speed connections can be difficult to find even in high-traffic areas.

Last December Gensler & Associates, an architectural firm in San Francisco, ordered two T-3, 45M bit/sec lines from its local service provider and two similar circuits in New York. Gensler is still waiting.

Despite the wait, T-3 and OC-3 services are proven. Broadwing and other Gigabit Ethernet carriers still have to show customers that Gigabit Ethernet is a viable wide-area alternative, The Yankee Group's Maynard says. Price will only take them so far, but if the services cannot be restored as quickly as traditional WAN services, users aren't going to stick with them, he says.

Broadwing may be in a better position than its Gigabit

Ethernet competitors because it is also offering users traditional services, such as private line, ATM and frame relay.

Broadwing says users can connect offices across the country, but the service is expected to first be available in a few select cities to betatest customers and then generally available in the third quarter.

Get more information online.

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Roundup, continued from page 14

Service providers are also cutting back deployments because of tight capital markets that contributed to widespread failures in the competitive local exchange carrier ranks. This has prompted LuxN to concentrate development on lower-cost optical devices that generate a quick return on investment (ROI), according to Imregh.

"The customer always has the option to just do nothing," Imregh says. "Two years ago the industry chased the hottest start-up carrier. That's not as meaningful as it used to be anymore. Wall Street is now rewarding good ROI on specific markets."

Imregh says LuxN is insulated a little better than some of its competitors from the rough economy because the company focuses sales on service providers that have and are making money. Conversely, service providers also want to deal with established suppliers, says Nan Chen, director of product marketing at Atrica.

"The slowdown in the mar-

ket means [service providers] are choosing to invest in only those companies that they believe are implementing the right technologies and who have the right team in place to be successful," Chen says. "When times are good, there is not as much incentive to look for ways to reduce costs. Because optical Ethernet technology offers a compelling cost advantage, we are seeing many of the providers actually accelerate their [spending and buildout] efforts, particularly the incumbents."

CIMI's Nolle says this air of optimism is "crap" and warns that metropolitan Ethernet vendors are only fooling themselves.

"It's going to get much worse for these companies," he says. "Major service providers know that ATM works, and it goes back to the issue of what kind of equipment is on the customer premises. I bet that if you took a sample of say, the Fortune 500 companies, you wouldn't find a single buyer of Ethernet metro service."



### No-show continued from page 14

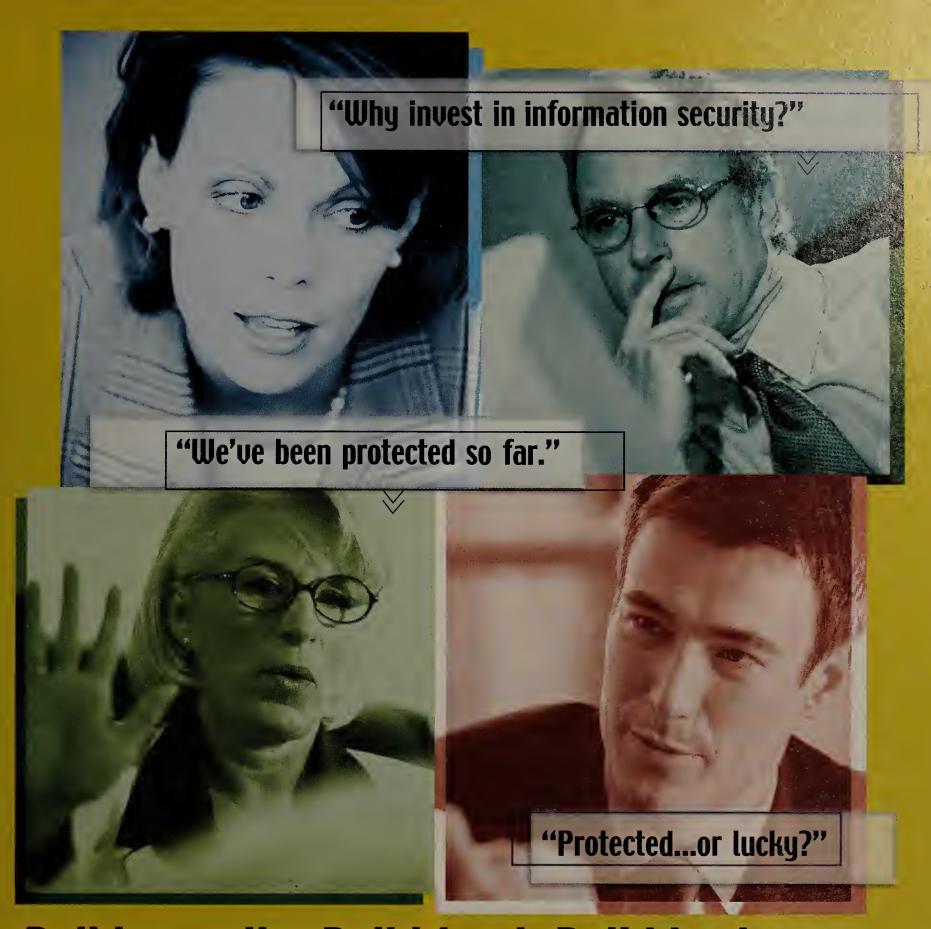
larger than last year, according to Key 3 Media, which runs N+I. Organizers estimated that 65,000 would attend the show this year vs. 60,000 last year. Just as many things are over-hyped at N+I, show organizers say that some IT companies may be overreacting to the market.

"There's been an irrational

fear going on in the market right now, as well," says Valerie Williamson, a Key 3 Media executive, and president of the NetWorld+Interop show.

"Everybody in the media is talking about the sky falling," Williamson says, "and that's perpetuating some irrational fear," among IT companies.

Staff writer Denise Dubie contributed to this report.



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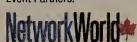
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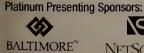
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# The future of high-speed wireless LANs hits Vegas

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LAS VEGAS — Wireless vendors are using NetWorld+Interop 2001 to unveil the faster (and smaller) future of wireless LANs

Attendees will get to see what may be the first public demonstration of an 802.11a wireless network that supports speeds up to 54M bit/sec. There will also be matchbook-sized radio cards that will let PocketPC and similar handhelds connect to the current crop of 11M bit/sec 802.11b networks. Finally, some early voice-over-IP handsets are being introduced for 802.11b networks, enabling enterprise users within a building or campus to use the same wireless infrastructure for voice and data.

The 11a prototype network is being demonstrated by Intermec of Everett, Wash. The vendor plans to set up the 54M bit/sec wireless network, based on a 5-GHz radio using Atheros' two-chip CMOS package. Intermec engineers

have been working with Atheros for nearly a year, focused on writing software and firmware that will introduce higher-level features for the planned 11a LAN product, due out by September, according to Greg Smith, vice president of Intermec's wireless products group. These features include giving priority to some types of traffic over the wireless network.

The booth will have a laptop, loaded with a bandwidth-hungry DVD file, and the prototype 5-GHz wireless access point, both connected to a wired LAN.A second laptop, with a prototype interface card, will connect to the access point and display the DVD file.

The Intermec booth will also have several pieces of equipment with 802.11b radios, which operate in the 2.4-GHz band. The idea is to prove that the two

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Untangling wireless

A quick guide to wireless LAN standards:

IEEE 802.112M bit/secFirst IEEE standard for wireless LANs.IEEE 802.11b11M bit/secMuch faster, but users share bandwidth.IEEE 802.11gup to 24M bit/secProposed; uses same 2.4-GHz band as 11b.IEEE 802.11aup to 54M bit/secFirst to use 5-GHz band.

networks can operate without interfering with each other.

Intermec is one of many wireless vendors developing the higher-speed 802.11a networks. Cisco plans to deliver a similar product later this year or early next year.

Symbol Technologies, of Holtsville, N.Y., will show its CompactFlash card for connecting handheld devices to 802.11b wireless networks.

This is important because wireless LAN interface cards have been fairly large for connecting laptops or desktop PCs to a wireless access point. For handheld computers and PDAs to connect to a wireless LAN, a smaller but still power-efficient size is needed.

The new Symbol card is about half the size of a credit card. It will be shown connecting Compaq iPaq and Hewlett-Packard Jornada PocketPCs to a wireless

InfiniBand,

continued from page 12

make InfiniBand routers.

IBM and Intel are said to be joining InfiniCon and others in the nascent InfiniBand switch and adapter market. Vieo claims it will develop software that will manage and optimize the operation of applications such as databases that run on InfiniBand networks, a company spokesman says.

InfiniBand will first be implemented as host and target channel adapters and switches. The host channel adapter (HCA) will fit in the PCI slot of an existing server or an embedded InfiniBand server.

The HCA will attach to an Infini-Band switch, which will route data to a target channel adapter (TCA) in a storage or other communications device. Vendors such as Emulex and Atto Technology plan to make TCAs.

IDC expects the InfiniBand market to be huge. The research firm says 100,000 servers built around the InfiniBand architecture will ship late this year, skyrocketing to 3.5 million servers in 2004. ✓

LAN in the Symbol booth.

"It's an amazing reduction in size, based on a new chipset from Intersil," says Phil Ballai, a senior manager with Symbol's wireless systems division. He says the power requirements for the new card are about the same as for the current, larger PC card for 11b.

"We have several 'modes' of operation," he says. "If the

user can live with a bit less performance [by the CompactFlash] card, we can lengthen the battery life." Depending on how often the handheld is used and for what, users can get two hours or more wireless LAN connect time from their laptop batteries.

The new card is due out in late summer at a probable cost of \$200 to \$260.

Intermec: www.intermec.com; Symbol:www.symbol.com

VPNs,

continued from page 16

arate applications such as content filtering. The F5 alliance means users can load balance between redundant cards in the device.

Pricing for the F5 load-balancing card has not been set.

FatPipe will be showing its load balancer that is designed to boost the security of VPNs. Called Multi-path VPN, the device sits between WAN routers and a VPN tunnel server, distributing LAN traffic to the routers and the multiple ISPs they connect to.

Multi-path VPN jumbles the order of the IPSec packets as they come from the VPN server and randomly dishes them off to up to three WAN routers. This makes it harder for potential intruders to gather the IPSec packets, and if they do, they are still faced with sorting them in the right order and decrypting them.

While this can boost security, the load balancing may be even more attractive. Dividing Internet connections among several service providers decreases the likelihood of losing Internet connectivity altogether.

FatPipe is also introducing WARP, its pure load-balancing box.

Multi-path VPN comes in three models with speeds of 2M, 50M and 135M bit/sec, which cost \$6,500, \$14,500 and \$24,500, respectively. WARP comes in two models with speeds of 50M and 135M bit/sec, which cost \$14,500 and \$24,000

SonicWall: www.sonicwall.com; Asita: www.asitatechnologies.com; Fat Pipe: www.fatpipe.com





## Pilot, continued from page 1

OneSecure, which operate data centers aimed at providing managed security services.

Pilot's demise, which came without warning from founder and CEO Marketta Silvera, left customers scrambling to retrieve their Web servers from Pilot and locate new ISPs. One Pilot customer, Providian Financial, stepped forward to hire a half dozen Pilot employees to keep Pilot's Alameda, Calif., facility running. And Providian took on the job of staying in touch with Pilot's telecommunications providers to ensure network circuits connecting Pilot's Alameda data center and elsewhere would not be shut down.

#### **Maintaining circuits**

As of last week, Pilot's circuits were being maintained on a day-to-day basis. Service providers SBC Communications, AT&T, Sprint and WorldCom were using the opportunity to woo the stranded Pilot customers. But by all accounts, it was Providian that helped keep the centers open.

"Our interest is to keep Providian's Web site and secure Internet access up and running, although other Pilot customers

may benefit from our efforts," says Konrad Alt, senior vice president.

Providian was one of the more fortunate Pilot customers that received a phone call from a Pilot employee warning that Pilot was apparently going out of business. Several customers have pointed out they were contacted

by ex-employees, as Pilot had fired its approximately 200 workers through a mass e-mailing on April 24.

"They gave everyone 15 minutes to leave the building," says Len Cibelli, a former Pilot sales director. "It was deplorable. It's insane and incomprehensible."

"We really didn't get direct notification through the company," adds Jon Hertzog, CIO at Rand, a three-year Pilot customer. "The sales agent, who's no longer an employee, had the

#### Managed security services checklist

Pilot Networks Services folded recently, prompting some skepticism about managed security service providers. Here are a few things to keep in mind when choosing a service:

- ✓ Have an alternative ISP with some managed security services to fall back on.
- ✓ Make sure your managed security services provider has at least \$25 million in venture capital or other funding.
- ✓ Make sure your provider is capable of developing homegrown technology to manage the multiple firewall and intrusion-detection products on the market today.
- Have a contract with your provider that stipulates at least a two-month time frame to terminate service.

SOURCE: GARTNER GROUP AND NETWORK WORLO

decency to let us know."

Rand has a contract with Pilot for Internet access, plus firewall and intrusion-detection services, which stipulates that neither can terminate the arrangement without a 90-day notification.

#### **Financial trouble**

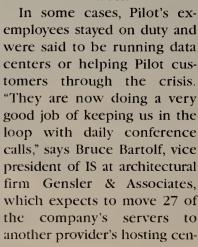
"We were watching their financial situation and thought they'd at least give us a month's notice. But now we're scrambling around like crazy," Hertzog says. For fiscal year 2000, Pilot reported \$31.9 million in revenue with a net loss of \$21.7 million.

According to several Pilot customers who asked that their names not be used, Pilot filed for bankruptcy last week, but the filing could not be confirmed by press time.

Silvera, who hasn't respond-

ed to requests for explanation, has been "missing in action" the last two weeks during Pilot's crisis, according to several customers.

During all of this, Pilot's Web site continues to blink with the message: "Securing the future of e-business," with no indication of the company's woes.



ter within two weeks. He has not been able to secure highspeed local connections in San Francisco and New York to support the service in-house due to apparent backlog.

Bartolf says he has emergency low-speed Internet-only backup that can be used if necessary.

Other Pilot customers include Sovereign Bancorp, *The Washington Post, The Los Angeles Times*, PeopleSoft, the Gap, GE Capital, Altera, *Newsweek*, Fremont Bank and Memorial Health Services. Some were scrambling to find alternate hosting centers and if possible, the kind of managed security services Pilot offered, such as firewall, antivirus, VPN and intrusion detection.

Like other Pilot customers, Hertzog was pleased with Pilot's managed security services, which cost the company about \$120,000 per year. "There aren't a super lot of alternatives out there," he says, noting it's expensive to mimic the same security services through in-house staff on a round-the-clock basis.

One Pilot customer who shared information anonymously notes his company had lost Pilot security services but not Internet access and was in daily contact with Providian over the fate of the Pilot data centers. The customer also says his company had just paid Pilot more than \$75,000 for the next 12 months' service.

For some observers, Pilot's

failure came as no surprise. In a report called "Surviving the managed security services shakeout," Gartner last month warned it was a "no-brainer" to predict that more than half of the start-up managed security providers would fail.

More than \$1 billion in venture capital has poured into these start-ups so far, Gartner says. But many just won't have the partnering agreements with larger companies to build national sales, or will neglect development of the complex monitoring technologies needed to run these kinds of data centers once their funding fails. When the managed security providers do fail, it will be "quickly and loudly," Gartner stated.

"At this point, I think we see the long-distance providers, the monopoly [local exchange carriers] and companies like IBM as partners for this," says one Pilot customer, who asked that his name not be used. "For us, Genuity is also a lead candidate for these types of security services."

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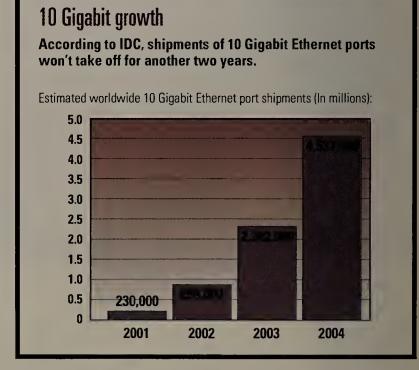
www.nwfusion.com

## 10 Gig, continued from page 8

Component makers Blaze-Networks, Broadcom, Finisar and SwitchCore will be showing 10 Gigabit transceivers and chipsets at N+I.This could be a signal for an upcoming rush of 10 Gigabit products from equipment vendors in the coming weeks and months.

Foundry's B10Gx module will be available in July for \$45,000. Various optical inserts will also be available with ranges of 65 meters for LAN applications to 40 kilometers for long-haul transport, with support for 10 Gigabit Ethernet over SONET/Synchronous Digital Hierarchy networks. Optical inserts will range from \$4,500 to \$40,000.

Meanwhile, the IEEE 10 Gigabit Ethernet Task Force is expected to ratify the 802.3ae standard next March. Because the standard is not yet set, early adopters could risk having to upgrade to new equipment if the technology changes from now until March 2002, although 802.ae standards



drafters have said that is

Despite the onslaught of 10 Gigabit Ethernet products, Dell' Oro Group analyst Seamus Crehan thinks mainstream adoption of the technology is still two to three years away.

"The jump from Gigabit to I0 Gigabit will be slower than what happened when Gigabit replaced Fast Ethernet" two years ago, Crehan says. This is because few users on the enterprise side need so much bandwidth now, while only a handful of advanced carriers are familiar enough with Ethernet to quickly turn the technology into a profitable service, he adds.

Avaya: www.avaya.com; Foundry: www.foundrynet. com

Jon Hertzog, CIO at Rand,

says it will be difficult to find

cost-effective alternatives to

the Pilot management secu-

rity system.

# U.S.-China hacker brawl draws few Web combatants

BY ELLEN MESSMER

Although not exactly a cyberwar, a hacking brawl of sorts erupted last week between Chinese and U.S. combatants.

The National Information Protection Center (NIPC) at the FBI had earlier warned that Chinese hackers would attack U.S.-based Web sites in a campaign to avenge the U.S. spy plane incident and arms sales to Taiwan.

Web sites run by the Department of Labor, Health and Human Services and the White House Historical Society were among many defaced with Chinese flags and slogans such as "Beat down imperialism of America!" from groups claiming names such as the "Honker Union of China" and "China Eagle."

At the same time, U.S. hackers defaced hundreds of Chinese sites operated by local and national government departments with the .cn domain name, frequently leaving vulgar and racist taunts along with anti-Communist invective and images of nuclear bomb explosions.

Security consulting firm TruSecure, which was tracking the hacker activity, says there were about 260 successful attacks each day perpetrated by perhaps 12 individuals from both sides.

"But we're just beating the snot out of the Chinese," says Peter Tippett, Tru-Secure's CTO. It appears there were roughly three times more hacks from American locations against Chinese sites than vice versa, although Tippett acknowledges that hackers can use spoofed IP addresses.

He says the main reason the Americans seemed to be having more success than the Chinese was because the Chinese haven't updated their Web servers with software patches to prevent known attacks, which are frequently carried out by hackers with an array of easily obtained scripting hack tools. Software patches for Chinese-language servers using double-byte code don't usually become available as quickly as those for English-language servers.

The American hackers, who sometimes called their fight "Project China," were the usual suspects. The Chinese participants included the Li0n Group, known to have released the dangerous Li0n Trojan horse.

Tippett says there's no evidence the hackers have gone beyond defacing Web sites. "It's like spray-painting a bridge," he says. The attackers frequently even left a link to the home page.

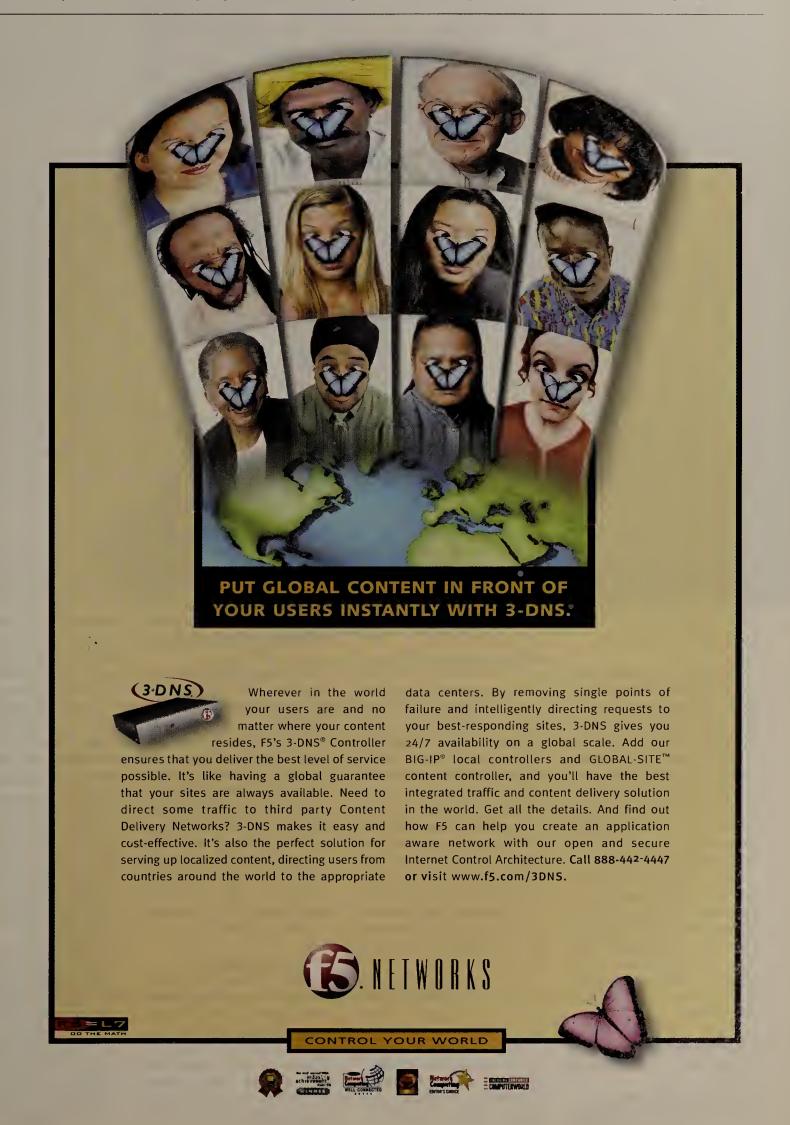
"It's the kind of thing we've seen before, two kids on both sides going after each other," says Steve Trilling, Symantec's director of research. "It's like graffiti."

The NIPC advisory about the attacks and publicity from news sites served to fuel the fire, Tippett adds.

An organization called Attrition.org, which runs a site that documents hacked sites, usually steers clear of commentary, but last week, the group

issued a statement denouncing the China-U.S. hacker feud.

"It's just the collective [posturing] of a bunch of script-kiddies fueled by socalled journalists generating media hype, the former trying to feed their egos and the latter to feed their hit counts," the statement says.



Army, continued from page 1

and control system that will be used in combat operations. Every major network management software vendor - including Hewlett-Packard, Computer Associates, BMC Software, Tivoli Systems and Concord Communications — is vying for a picce of the deal, which could be worth \$1 billion or more over the 15-year life of the program.

"The military is so dependent on networks, computers and phones," says Martin Amen, director of the space and communications systems division for Logicon, a government contractor bidding on JNMS. "When you look at what the military is trying to do — the planning, deployment and redeployment of diversified networks on the battlefield - you see that the mission is pretty daunting compared to the commercial network management problem."

"There's no doubt that this is the biggest network management system ever built," says another industry executive tracking the JNMS program, who asked not to be identified. "Nobody in the world operates a network as big as the Depart-



George Fitzpatrick, front, and Lt. Col. Angel Colon are key figures in the planning of the Army's massive network project, JNMS.

ment of Defense. This is like supporting a mobile Ma Bell. The logistics, the tactical planning, the requirements on this program are massive."

The initial JNMS contracts are expected to be in the \$75 million to \$100 million range, according to Lt. Col. Angel Colon, product manager for communications management systems at the Army's Communications-Electronics Command (CECOM). But Colon confirms the program likely will be worth many times that amount as the Navy, Marines and Air Force buy compatible gear.

Three systems-integration teams are in the running for the JNMS contracts: AT&T teamed with Lockheed Martin, Harris, ACS Defense and Computer Associates; Logicon is teamed with General Dynamics; and Science Applications International Corp. is teamed with TRW. Each team has dozens of subcontractors, leaving many IT companies around the Washington Beltway with champagne on ice to celebrate a possible JNMS victory.

"The buzz on JNMS is intense," the industry executive says. "We're all in a waiting game now."

On the drawing boards for a decade, JNMS will serve as a common network management platform for joint military operations. The Army is handling the research and development for JNMS, but the system will be deployed across all the military services.

The first units are due in 2003, with full deployment expected by 2006.

#### Delivering a shared view

JNMS is planned to provide the military's top brass with a shared view of the network infrastructure being used in a particular military operation. As such, it will manage networks that are strung together at a moment's notice out of radio, satellitc, wired and wireless links in far-flung regions of the world. And its users — military commanders aboard ships, tanks and aircraft — are among the most mobile.

JNMS is expected to support high-level and detailed network planning, monitoring, reconfiguration, spectrum management and security.

It replaces a 2-year-old interim system dubbed JDIICS-D for Joint Defense Information Infrastructure Control System-Deployed, which provides rudimentary network monitoring and trouble ticketing.

"JNMS will enable the actual network planning and the sharing of plans across different headquarters and services," Colon says. "For the first time across the services, we'll have a flexible and scalable network management architecture. We can continue to add modules and capabilities without having to go back to the drawing board."

The common architecture should ease user training, which is a serious problem given the military's transient workforce.

"If we have a common network management capability, as people rotate from one region to another, they don't have to relearn the tools," Colon says.

The JNMS architecture relies heavily on commercial software, and it mandates Internet standards including TCP/IP, SNMP and RMON. These requirements are designed to eliminate interoperability problems between the services and protect the military's investment into the future.

"One of the things that the Army has talked about is developing a flexible, extensible architecture so you can plug

Network World, 118 Turnpike Road, Southborough MA 01772-9108, (508) 460-3333.

Periodicals postage paid at Southborough, Mass.

and additional mailing offices. Posted under Canadian International Publication agreement #0385662.

Network World (ISSN 0887-7661) is published

last week in December and the first week in January by Network World, Inc., 118 Turnpike Road,

Network World is distributed free of charge in the

the qualification card in this issue or write Network

World at the address below. No subscriptions

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and play certain commercial off-the-shelf technology as the system goes forth in its evolution," Logicon's Amen says.

#### Does AT&T have a leg up?

Indeed, the AT&T team hopes the experience managing its telecommunications network will give it a leg up on the competition.

"The solution that we offered up to the Army is heavily influenced by what AT&T does in the commercial marketplace," says Jerry Garretson, who directs military communications programs at GRC International, an AT&T company. "But instead of leasing services as we would in the commercial world, we'll build a system and sell it to the military."

The Army will award two JNMS contracts: one each for software development and training and support. Both contracts last for one year, with six one-year extensions. The software contract includes options for the Army to buy hardware, including network management servers and clients.

"One of the vagaries here is the hardware options," says George Fitzpatrick, project leader for JNMS for the Army's CECOM. How much JNMS will ultimately cost depends "on what capabilities the services have and how many systems

Among the companies expected to play a role in JNMS regardless of which team is selected are the vendors whose products are already used in JDI-ICS-D: HP, Cisco, Remedy and OPNET Technologies.

Get more information online. DocFinder: 4154 www.nwfusion.com

# Start-up touts better streaming

BY JASON MESERVE

LAS VEGAS — A group of former Bell Labs scientists is looking to overcome the problem of Internet congestion degrading the quality of streaming media.

StreamCenter's InCompass Quality is a combination of server software and client-side plugin that monitors network traffic for signs of congestion. The technology will be unveiled at NetWorld+Interop 2001.

Most congestion occurs in last-mile networks, not edge and backbone networks, says Prat Moghe, CEO of StreamCenter. Using pattern-recognition techniques, the type of congestion is identified and the server adjusts the packet rate to help alleviate the problem.

Moghe claims the Murray Hill, N.J., company can increase the number of bytes delivered by 20%.

"The problems with streaming media quality can be attrib-

uted to two things - codec quality [the algorithm used to encode the stream] and network congestion," says Will Davis, director of Webcasting at P-Wave, a regional streaming media provider in Reading, Pa.

To get more efficiency out of the same network, InCompass Quality fills gaps in the waveforms going across a wire with more data. A 50K-byte client sits on the viewer's machine and interacts with the player to monitor the stream. A server sits in front of an existing RealNetworks, Windows or QuickTime server to help adjust the packet flow. No changes need be made to the content.

"We've used the beta version, and there's a noticeable difference in the quality of the stream," Davis says.

InCompass Quality is scheduled for general availability in August for \$50,000 for 10,000 simultaneous streams, plus an annual maintenance fee.

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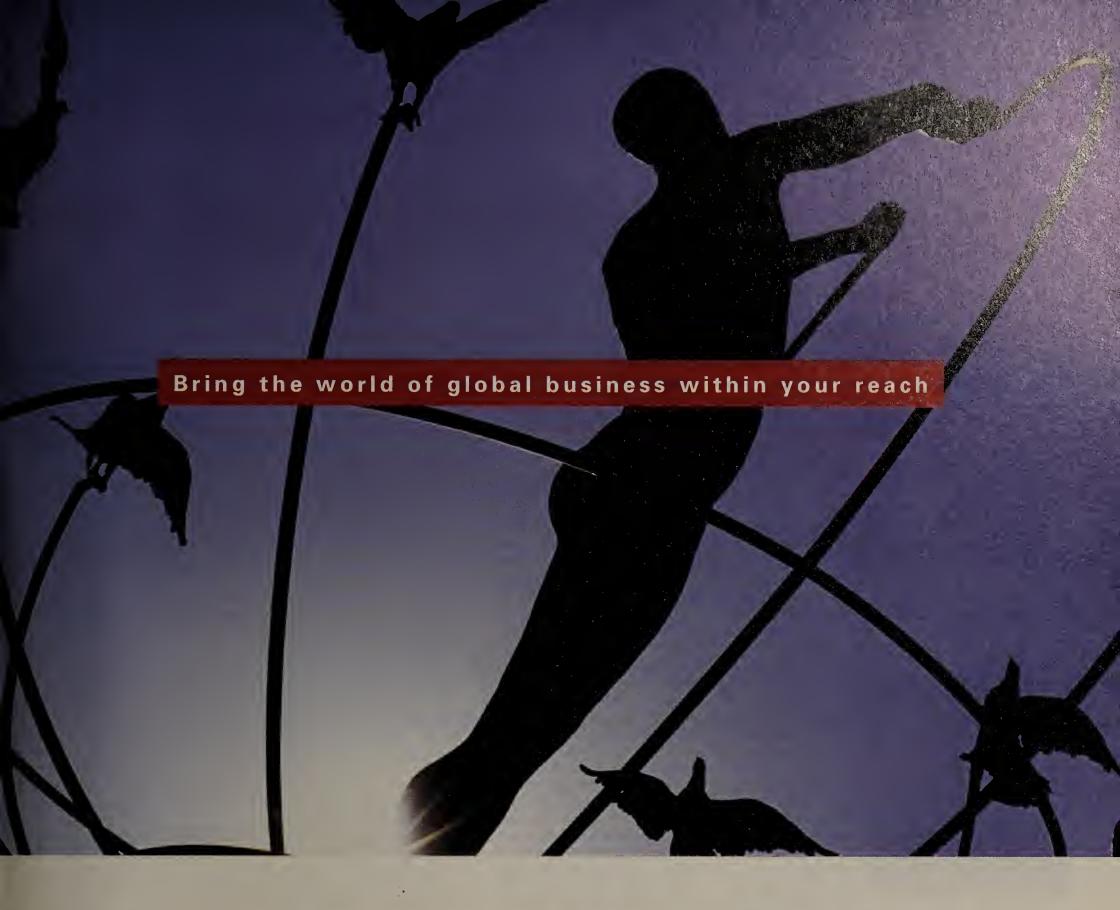
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# N times Z equals fuzzy logic

A cynic is a man who knows the price of everything and the value of nothing.

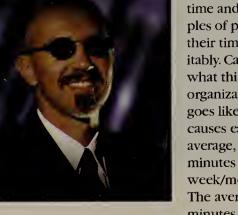
- Oscar Wilde, "Lady Windemere's Fan"

In the current era of shrinking budgets, I've been reading more about the need to cost-justify IT expenditures. Vendors and users alike seem to be talking about total cost of ownership and return on investment more than ever.

This trend got me thinking about whether such considerations are real. To put that another way, how meaningful are TCO and ROI?

My jumping-off point here is the countless column inches that have appeared over the years about time wasted by staff in nonwork-related

Web surfing, the cost of workstation downtime and other examples of people using their time unprofitably. Calculating what this costs the organization usually goes like this: Event X causes each user, on average, to waste Y minutes per day/ week/month/year. The average cost of Y minutes of the user's



MARK GIBBS

time is Z dollars, and as there are N users in the organization, the cost per day/week/month/year of Event X is N times Z dollars.

Now on the face of it, this kind of argument sounds reasonable. But my problem with these calculations is that the aggregation of these personal quanta of time cannot be done logically.

The fact is that you can almost never take Albert's, Bob's and Charlie's lost or abused chunks of time and lump them together in a meaningful way to show how much money is lost. People's time can rarely be aggregated in the same way that you add up the cost of wasted power from computer monitors left on overnight. Any attempt to do so is a kind of fuzzy financial logic that says nothing about value.

So how does this relate to TCO and ROI? I contend that many of the calculations of both metrics are examples of the same spurious

accuracy as the lost time calculations because they are usually founded on models that are based on idealized circumstances and shored up by faulty logic.

At the heart of the issue is that business is messy. You can build any model you like to analyze the cost of business, but at the end of the exercise that's all you've got — a model.

For example, think you've got the cost of upgrading your desktops to the new release of some software package nailed down? How wrong you could be.You may well find that even though the software installs easily, on a significant percentage of desktops it changes a registry setting or overwrites a DLL and, poof! Half of your desktops become unusable.

So after unwinding the updates, you find that you just needed to change a configuration parameter, re-install the damaged application or sacrifice a chicken as you cold boot. Nothing to it, it just wasn't factored into your model, thereby invalidating your calculations.

And over the life of a product estimating TCO or ROI will, most often, be very difficult. Your calculations will be based on idealized models of your business processes, and those models will be mostly wrong in many important aspects.

One of the main reasons that models of business processes will be out of sync with reality is that IT can have only a broad, simplified idea of what business processes actually involve. And much of this limitation is because computers usually support business rather than actually being the business.

The key is to analyze the value a potential investment could bring to the organization — how does this investment make our business better, rather than analyze the price — and what will this cost us?

I'm not saying you should completely dispense with TCO and ROI. What I suggest is that you treat them with disdain and suspicion, knowing that if you have to stake your job on their accuracy without being able to define value, you might as well start polishing up your resume.

Send your value to nwcolumn@ gibbs.com.



You oversee a four-star restaurant, a Broadway theater or a house of worship, and all you're praying for these days is a way to stop ringing cell phones from spoiling the experience that draws people to your establishment.

The good news is we have the technology. The bad news is that jamming cell phone signals is illegal, by and large, unless you have a public-safety or security rationale to offer, as with hospitals and certain government buildings.

The situation presents a thorny challenge to entrepreneurs such as J. David Derosier, CEO of a year-old start-up called Cell Block Technologies.

Derosier emphasizes — repeatedly — that his company's Cell-Block-R system does not use illegal and otherwise problematic jamming technology to quiet boorish phone users. Instead, he claims to have hit on "an elegantly simple solution" that . . . well, we could get into the details here, but they almost certainly will not matter. He has yet to convince regulators in the U.S. or Canada that Cell-Block-R warrants any government stamp of approval that has long been denied to the jammers.

PAUL

MCNAMARA

As for the principle at stake?

"Our position is that the proprietor of an enclosed space should have the right to control disturbances within that space," Derosier says. "That could be a fight in a bar, that could be somebody yelling at his kid on a cell phone, or whatever."

He's right, but again, that's unlikely to matter either.

Public cell phone use isn't an issue of personal freedom. Diners, moviegoers and worshipers have no more of a "right" to use a cell phone in such places than they do a boombox or a chain saw.

No, this is a battle over big bucks and the competing interests of property owners. And this competition is a mismatch.

In one corner we've got small-time entrepreneurs like Derosier and the largely mom-and-pop proprietors of eateries and theaters who'd like to maintain decorum in their establishments by fighting technology with technology.

In the other corner we've got a multibillion-dollar mobile telecommunications industry that paid megabucks to the government for its spectrum and really couldn't give a beep if moviegoers beat each other silly over differences of opinion on phone manners. The industry doesn't want to see that investment devalued in any way.

So ask yourself this question: Which of these two constituencies—
the mammas and the pappas, or the 800-pound campaign contributors—has the better chance of winning the support of federal lawmakers and the government regulators who bow to them?

Derosier knows it may be awhile before the dynamic changes.

"We're fortunate in that our corporate strategy doesn't depend on it for survival," he says.

Instead, the company intends to focus on selling Cell-Block-R to the security and safety markets, which face much less regulatory static. After all, not even the phone companies will argue that their spectrum interests trump a hospital's need to protect ICU equipment.

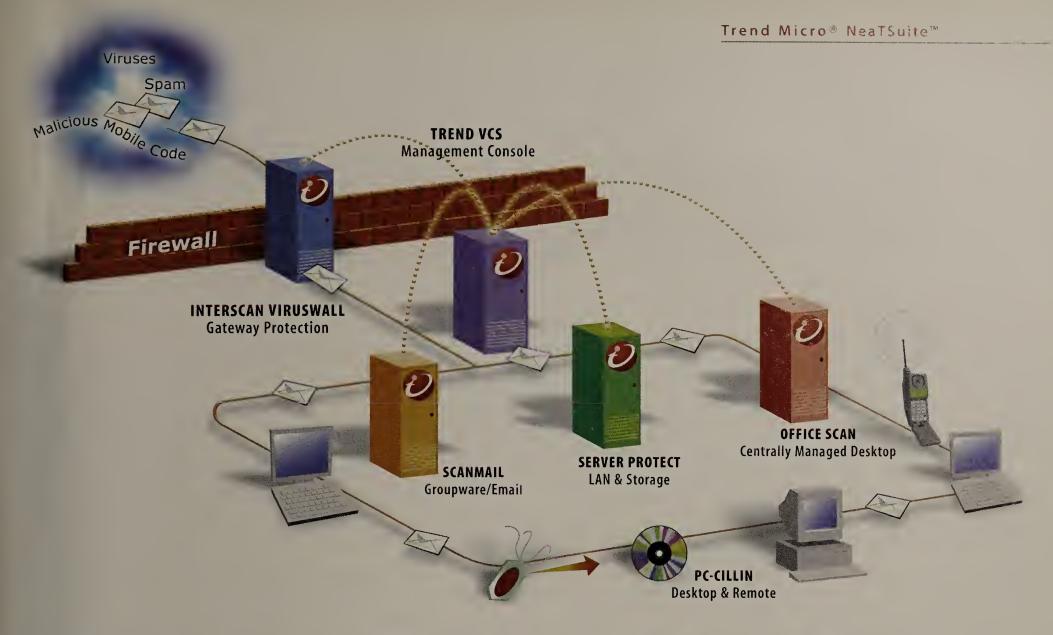
A bad economy can produce good wordplay. Witness this use of "NorthPointed":

In a story published on our Network World Fusion Web site, an IT executive at a San Francisco company was lamenting the demise of Pilot Network Services, which had provided his firm with managed Internet access and security services before recently pulling the ripcord.

"We knew they were having some problems, but we didn't expect to get NorthPointed," said **Bruce Bartolf**, thus immortalizing the bankrupt DSL provider whose remnants were bought in March by AT&T.

Imagine the dictionary entry: northpoint (north'-point) v. -ed, -ing, -s 1. To leave service customers in the lurch with little or no warning; n. 1. The embodiment of failure in a new market.

Heard any other good additions to the lexicon lately? The address is Buzz@nww.com



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See you there!

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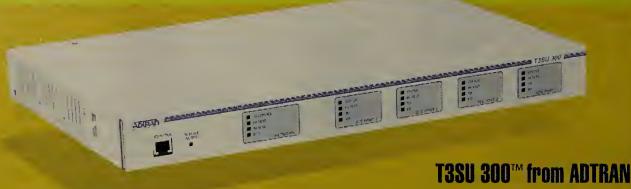










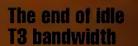


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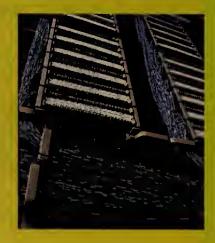
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